21 A1

THE AMERICAN JOURNAL of Proctology

The Authoritative Journal of Proctology, Gastroenterology and Allied Subjects.

OFFICIAL PUBLICATION OF THE INTERNATIONAL ACADEMY OF PROCTOLOGY

Diseases of the Rectum and Colon

Anatomy of the Ano-Rectal Region

The Utilization of Dextrose, Levulose and Invert Sugar

Trends in Surgery

Multiple Malignancies

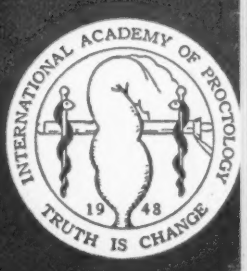
Malignant Disease

Diagnosis

Prolapse and Procidentia

Editorials

Therapeutic Abstracts



Long-lasting relief

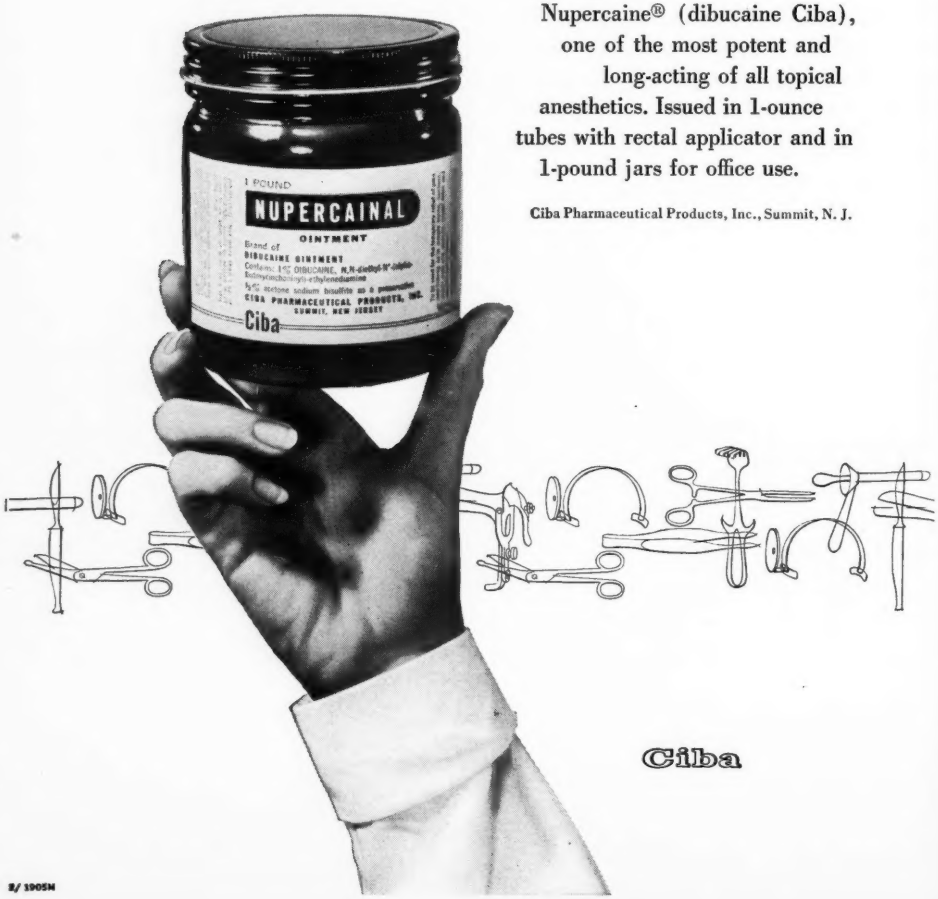
of surface pain and itching

with **Nupercainal®**

potent . . . . . nonirritating . . . . . nonnarcotic

The effective and prolonged surface anesthesia provided by Nupercainal Ointment (dibucaine ointment Ciba) brings long-lasting relief from pain and itching in sunburn, hemorrhoids, abrasions, dermatoses and many other conditions. Its effectiveness is due to its 1 per cent content of Nupercaine® (dibucaine Ciba), one of the most potent and long-acting of all topical anesthetics. Issued in 1-ounce tubes with rectal applicator and in 1-pound jars for office use.

Ciba Pharmaceutical Products, Inc., Summit, N. J.



Ciba

8/ 1905M

CONTENTS

Feature Articles

Diseases of the Rectum and Colon **113**
Horace Wendell Soper, M.D., F.A.C.P.

Anatomy of the Ano-Rectal Region **115**
David S. Jones, M.D.

The Utilization of Dextrose, Levulose, and Invert Sugar by Normal and Surgical Patients (Part II) **117**
Jacob Joseph Weinstein, M.D., F.A.C.S., F.I.C.S., F.I.A.P.
Joseph H. Rose, Ph.D.

Cancer Seminar

Trends in Surgery of the Rectum and Left Colon .. **128**
Earle I. Greene, M.D., F.A.C.S.
J. Major Greene, M.D., F.A.C.S.

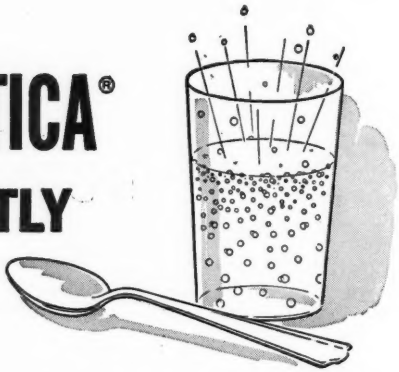
Multiple Primary Malignancies of the Intestinal Tract **132**
William P. Smith, M.D., F.A.C.S., F.I.A.P.

Malignant Disease **138**
M. Tischer Hoerner, M.D., Ph.D.

Opinions expressed in articles are those of the authors and do not necessarily reflect the opinion of the Academy or the Journal.

The American Journal of Proctology is published quarterly by The American Journal of Proctology, Inc. with publication offices at 34 North Crystal Street, East Stroudsburg, Pa. Business office at 34 N. Crystal St., East Stroudsburg, Pa. Business and Advertising office at 676 Northern Boulevard, Great Neck, N. Y. Editorial office at 43-55 Kissena Blvd., Flushing, N. Y. Subscription rates United States and Pan-American Union, 1 year, $4.00; 2 years, $7.00 (Foreign $4.50 and $8.00). Entered as second class matter at the Post Office at East Stroudsburg, Pa.

WHY SAL HEPATICA® ACTS SO PROMPTLY



The dependable laxative action of Sal Hepatica has a sound pharmacologic basis. It acts promptly because:

1 **It passes rapidly through the stomach.** "The emptying time of the stomach is actually shortened by reducing the gastric acidity."[1] *Sal Hepatica is antacid.*

"Effervescent mixtures decrease the emptying time of the stomach."[2] *Sal Hepatica is effervescent.*

2 **In the intestine it promptly stimulates peristalsis.** Sal Hepatica, by osmotic action, draws water into the intestine; the increased fluid bulk initiates peristaltic action. Evacuation usually follows promptly.

Pleasant-tasting Sal Hepatica provides prompt gentle laxation without griping. Being antacid, it relieves the gastric hyperacidity frequently accompanying constipation.

REFERENCES:
1. The Physiological Basis of Medical Practice. 1945, p. 486.
2. New England J. Med. 235:80, July 18, 1946.

ANTACID, EFFERVESCENT, SALINE LAXATIVE

PRODUCT OF BRISTOL-MYERS • 19 WEST 50 STREET • NEW YORK 20, N. Y.

CONTENTS

Surgical Seminar

Diagnosis 144

Atlas of Proctologic Surgery

Prolapse and Procidentia 148

Editorials

The Grievance Committee and Malpractice . 152
Louis J. Regan, M.D., LL.B.

Doctor Anonymous 154
R. L., California

Physician Patient Relationship—New York City 155

Priority III Physicians 156

Departments

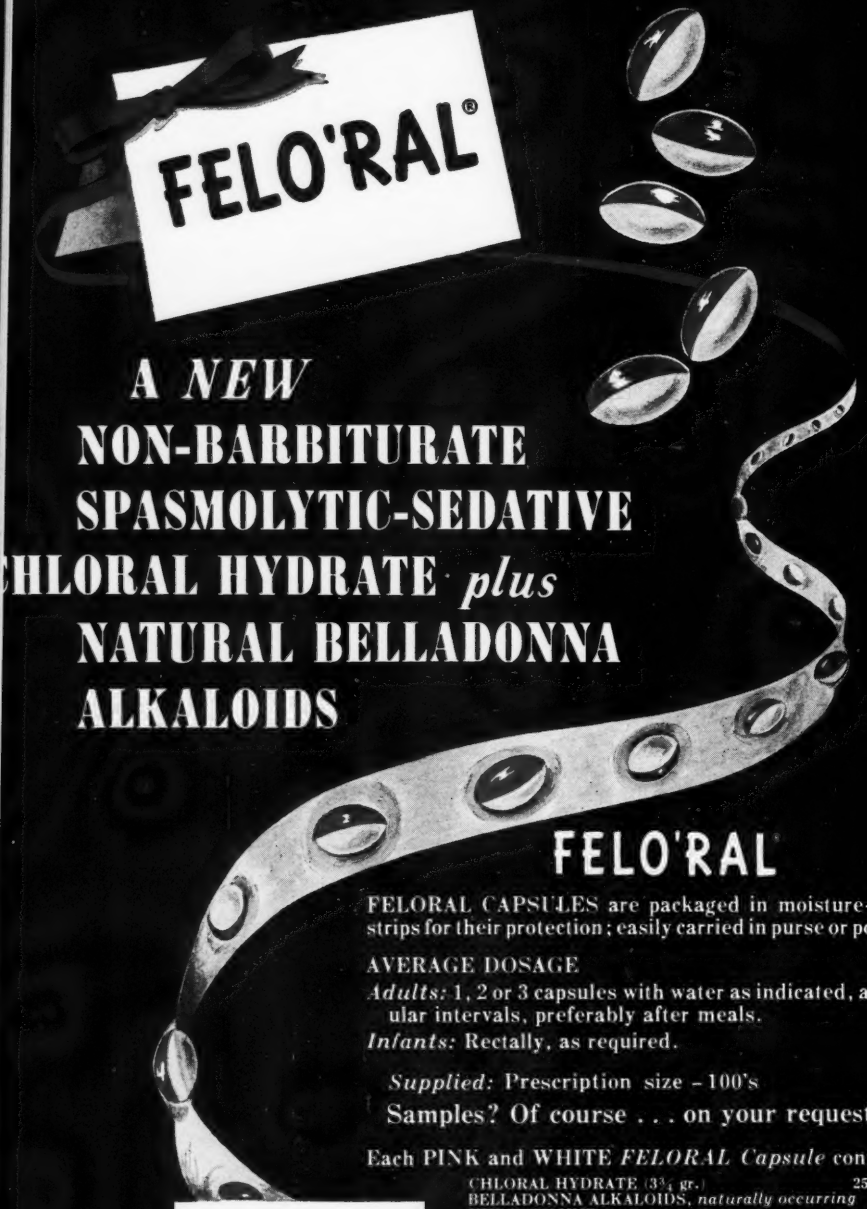
Letters to the Editor 108

Therapeutic Abstracts 162

News Notes 169

Book Reviews 170

Newer Medicinals 178



A *NEW* NON-BARBITURATE SPASMOLYTIC-SEDATIVE CHLORAL HYDRATE *plus* NATURAL BELLADONNA ALKALOIDS

FELO'RAL

FELORAL CAPSULES are packaged in moisture-proof strips for their protection; easily carried in purse or pocket.

AVERAGE DOSAGE

Adults: 1, 2 or 3 capsules with water as indicated, at regular intervals, preferably after meals.

Infants: Rectally, as required.

Supplied: Prescription size – 100's

Samples? Of course . . . on your request.

Each PINK and WHITE *FELORAL Capsule* contains:

CHLORAL HYDRATE (3½ gr.)	250.0 mg.
BELLADONNA ALKALOIDS, *naturally occurring*	
HYOSCYAMINE	0.100 mg.
ATROPINE	0.020 mg.
HYOSCINE	0.006 mg.

Fellows MEDICAL MFG. CO., INC. Pharmaceuticals

pharmaceuticals since 1866

26 Christopher St., New York 14, N. Y.

Originators of CHLORAL HYDRATE in *Soft Gelatin Capsules*

THE AMERICAN JOURNAL of Proctology

The Authoritative Journal of Proctology, Gastroenterology and Allied Subjects.

OFFICIAL PUBLICATION OF THE INTERNATIONAL ACADEMY OF PROCTOLOGY

ALFRED J. CANTOR, M.D.	Editor-in-Chief
EARL J. HALLIGAN, M.D.	Associate Editor
WILLIAM LIEBERMAN, M.D.	Associate Editor
EDGAR SCOTT, M.D.	Associate Editor

The Official Journal of Proctology, Gastroenterology and Allied Subjects

CONTRIBUTIONS Manuscripts for publication should be addressed to the Editor-in-Chief. Articles are accepted for publication with the understanding that they are contributed solely to this publication. When possible, two copies of the manuscript should be submitted. References should be compiled in accordance with the style used by the Quarterly Cumulative Index Medicus of the American Medical Association. The publishers will have up to four half tones or line cuts made without expense to the authors. Reprints will be supplied the authors at cost. Original illustrations prepared by the publishers may be purchased by the authors if desired. Slides of these illustrations (standard size or 35 millimeter) can be supplied to the authors at cost.

AMERICAN JOURNAL OF PROCTOLOGY published quarterly by the American Journal of Proctology, Inc., at East Stroudsburg, Pa. Business office, 676 Northern Boulevard, Great Neck, N. Y. Editorial office 43-55 Kissena Boulevard, Flushing, N. Y. Copyrighted 1953 by the American Journal of Proctology, Inc. Subscription rate, United States, Pan-American Union, 1 year, $4.00, 2 years, $7.00 (Foreign, $4.50, and $8.00) Single copy: $1.00. Members of the International Academy of Proctology receive the official publication upon payment of their membership dues.

(Vol. 4, No. 2) JUNE 1953

read Pfizer Spectrum weekly in the J.A.M.A.

to control fulminating sepsis

Intravenous Terramycin therapy in over 100 cases of surgical sepsis following operations of the thorax, abdomen or limbs gave "none but the most favorable results. The well-known side-effects in connection with orally administered antibiotics . . . were never found to occur, nor did we at any time observe any other toxic reactions."

Deucher, F.: Schweiz. med. Wchnschr. 82:1 (Jan. 5) 1952.

broad-spectrum

Terramycin Intravenous

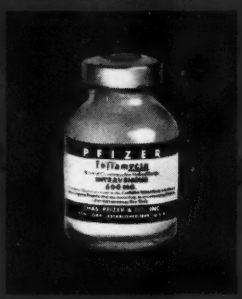
well-tolerated

in infants and children

"Our experience with Terramycin by the intravenous route has been good. It has been effectively used without difficulty by continuous drip infusion for several days in the smallest infant . . ."

Farley, W. J., Konieczny, L.: J. Pediat. 42:177 (Feb.) 1953.

Vials of 250 mg. and 500 mg.



as well as adult patients

Intravenous Terramycin, followed by oral therapy after 3-5 days, "is a singly effective, superior antibiotic in the treatment of peritonitis and . . . a good result can frequently be obtained with this drug when [other antibiotics] have failed. It thus has great usefulness both as a primary therapeutic agent and as an alternate antibiotic."

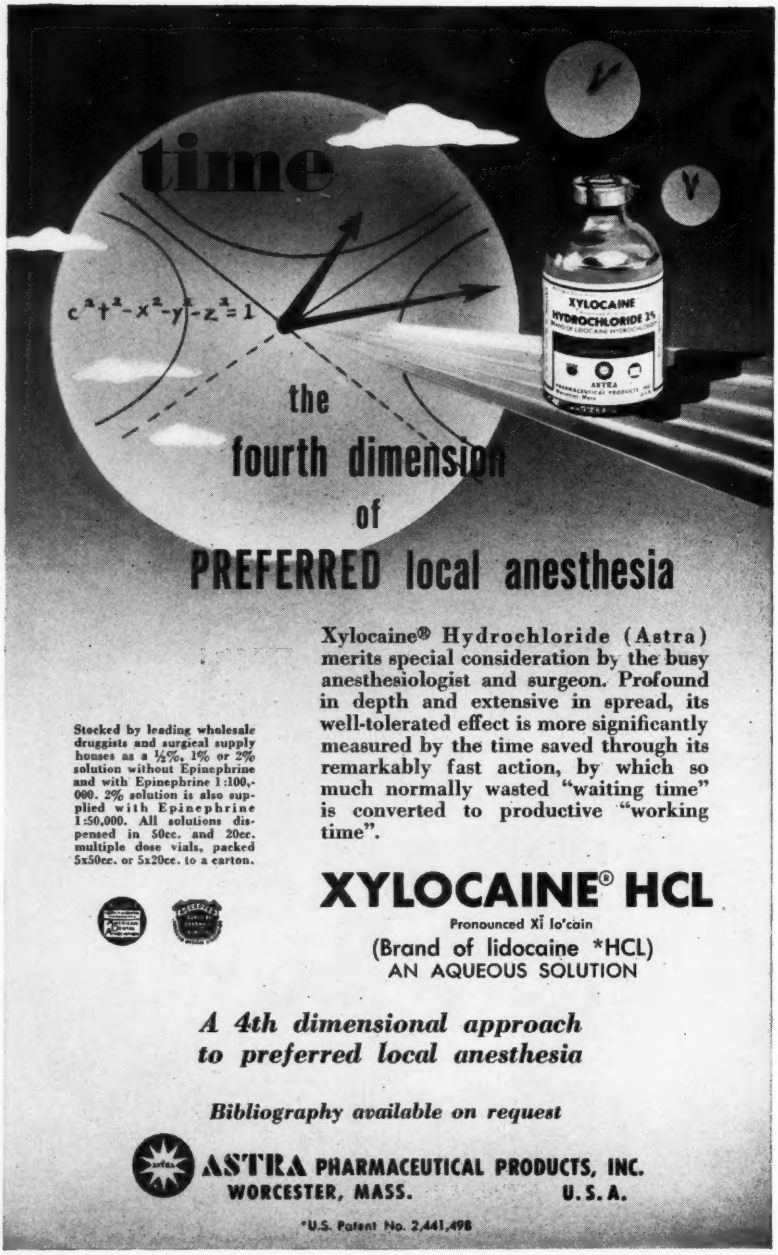
Reiss, E., et al.: A. M. A. Arch. Surg. 64:5 (Jan.) 1952.

Pfizer

Antibiotic Division
Chas. Pfizer & Co., Inc.
Brooklyn 6, N. Y.

BOARD OF EDITORS

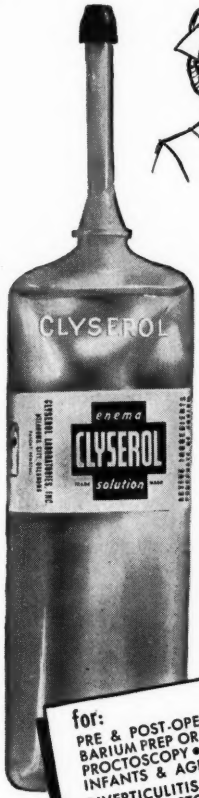
Editor	Alfred J. Cantor, M.D.
Associate Editors	Earl J. Halligan, M.D. William Lieberman, M.D. Edgar Scott, M.D.
Contributing Editors	Edward Krol, M.D. Paul Lahvis, M.D. Caesar Portes, M.D. Manuel G. Spiesman, M.D. Henry A. Springer, M.D. Jacob J. Weinstein, M.D.
Editorial Council	
Surgical Section	Earl J. Halligan, M.D. W. Wayne Babcock, M.D. Manuel Lichtenstein, M.D. J. P. Lockhart-Mummery, M.D. Alexander Brunschwig, M.D.
Anesthesiology Section	Max S. Sadove, M.D. Leonard F. Kowalski, M.D. Vincent J. Collins, M.D.
Gynecological Section	Gilbert Franklin Douglas, M.D. Samuel L. Siegler, M.D. Samuel Dodek, M.D.
Experimental Medicine and Surgery	Hans Selye, M.D.
Gastroenterological Section	Beaumont Cornell, M.D. Leo Hardt, M.D. Louis L. Perkel, M.D. Harry M. Eberhard, M.D. L. Kraeer Ferguson, M.D. Horace W. Soper, M.D.
Pathology Section	Anderson Nettleship, M.D. George J. Rukstinat, M.D.
Physiochemical Section	Jacob J. Weinstein, M.D.
Neoplastic Surgery	George T. Pack, M.D.
Anatomy Section	David S. Jones, M.D.


time
$c^2t^2-x^2-y^2-z^2=1$
XYLOCAINE
HYDROCHLORIDE 2%
the
fourth dimension
of
PREFERRED local anesthesia
Xylocaine® Hydrochloride (Astra) merits special consideration by the busy anesthesiologist and surgeon. Profound in depth and extensive in spread, its well-tolerated effect is more significantly measured by the time saved through its remarkably fast action, by which so much normally wasted "waiting time" is converted to productive "working time".
Stocked by leading wholesale druggists and surgical supply houses as a ½%, 1% or 2% solution without Epinephrine and with Epinephrine 1:100,000. 2% solution is also supplied with Epinephrine 1:50,000. All solutions dispensed in 50cc. and 20cc. multiple dose vials, packed 5x50cc. or 5x20cc. to a carton.
XYLOCAINE® HCL
Pronounced Zī lo'cain
(Brand of lidocaine *HCL)
AN AQUEOUS SOLUTION
A 4th dimensional approach
to preferred local anesthesia
Bibliography available on request
ASTRA PHARMACEUTICAL PRODUCTS, INC.
WORCESTER, MASS. U.S.A.
*U.S. Patent No. 2,441,498

NOW—AN ENEMA THAT'S ADMINISTERED IN **ounces**

INSTEAD OF

PINTS



CLYSEROL 5-MINUTE ENEMA SOLUTION,
used both as a retention and a cleansing enema, has proved through four years of clinical testing to be efficient and safe to an outstanding degree, even for heart cases. Since two to four ounces suffice, it obviates painful distention so that patient dread of enemas is quickly overcome.

CANNOT HARM OR IRRITATE MEMBRANES,
cannot cause inflammation or toxicity or disturb digestion. This mild solution is non-absorptive and does not interfere with acid base or fluid balance; it evacuates the lower bowel quickly and without undesirable symptoms or discomfort.

TAKES ONLY MINUTES TO ADMINISTER
—usually about five minutes, instead of the usual thirty to forty-five minutes for the average high-fluid enema, an advantage for patient and nurse alike.

DISPOSABLE PLASTIC CONTAINER
is used for only one patient, then discarded; no cleaning-up, no sterilizing before or after administration. May be kept indefinitely without deterioration of solution or container.

for:
PRE & POST-OPERATIVE USE
BARIUM PREP OR IMPACTION
PROCTOSCOPY • OBSTETRICS
INFANTS & AGED PATIENTS
DIVERTICULITIS
STOOL CULTURE
. . . wherever and whenever cleansing of the major bowel is required.

FIRST MAJOR ADVANCE IN ENEMA SOLUTION & METHOD IN A HUNDRED YEARS . . . .

Literature and samples on request.

CLYSEROL

ENEMA SOLUTION

CONTENTS: Each 100 c.c. contains 1.25 grams Disodium Phosphate and 5.83 grams Monosodium Phosphate

CLYSEROL LABORATORIES, INC.
1533 West Reno, Oklahoma City, Okla.

LETTERS TO THE EDITOR

Furrow at Anal Margin

Dear Editor:

I have noticed on several patients following an operation for a fistula, that there is a small furrow at the anal margin. This naturally results from the excised tract. This furrow, however, is the cause of annoyance to some patients, because it results in a slight leakage of mucous and other anal contents.

Is there any way I can eliminate this furrow in order to make the patient more comfortable. Would touching up the furrow of the fistula with the electrode cause a fibrosis and a growing together of the tissue? Or do you have any suggestions how to overcome this. I would appreciate hearing from you.

Sincerely yours,
Alexander Solosko, M.D.

Thank you for your inquiry. It is very difficult to correct the condition described inasmuch as an excision procedure may result in a still deeper furrow. Touching the furrow of the fistula with an electrode may, in some cases, give sufficient fibrosis to tighten the tissue during retraction of the resultant scar.

However, unless the condition is very disturbing, the patient is best advised to eliminate mineral oil and any other laxative medication that might produce leakage, and to alter the diet to produce a slightly firmer stool. Under these circumstances there will be less tendency toward drainage through the furrow.

—Concluded on page 176

Painless Rectal Surgery!

Freedom from pain is the goal of the proctologist.

RECTOCAINE offers freedom from pain both before and after surgery!

RECTOCAINE permits immediate ambulation (Ambulatory Proctology—Cantor)

RECTOCAINE may be used in hospital or office to treat or prevent pain!

RECTOCAINE offers rapid return to work for the patient!

RECTOCAINE

The Oil Soluble Anesthetic of Choice

Boxes of 6, 25 or 100, 5 c.c. sterile ampoules

Also in ointment or suppositories

C. F. KIRK CO., 521 West 23rd Street, New York 11, N. Y., U. S. A.

SAMPLES AND LITERATURE ON REQUEST

Diseases of the Rectum and Colon

Their Diagnosis and Treatment

HORACE WENDELL SOPER, M.D., F.A.C.P.
St. Louis, Mo.

In the practice of gastro-enterology I have used the proctoscope and sigmoidoscope so often I have frequently treated diseases of the rectum as well as lesions higher up. In the treatment of these conditions the patient should always be placed in the knee-chest posture on a table with head and shoulders touching the table and the back concave. Realizing the sensitivity of the anal canal, for years I have preceded each examination by using a medicine dropperful of 10% solution of cocaine which must be permitted to remain in the anal canal for ten minutes before the introduction of the instrument. The cocaine should be used in every examination of the anal canal.

In dealing with *polyps*, either high or low in the rectum, I have always used the diathermy spark. It not only destroys the polyp, but extends about one-eighth to one-quarter inch into the mucosa. I have frequently diagnosed early cancerous lesions and destroyed them completely by this method. When contractions and spasms occur higher up, a half ounce of solution of magnesium sulphate should be injected through a rubber catheter.

Often small *ulcers* occur in the anal canal and can be removed painlessly by the application of chemically pure carbolic acid. I have frequently treated small rectal fissures by this method, also. I do not mean the large ulcerative type which requires surgery, but the small ones can be treated by introducing a small wooden applicator soaked in the chemically pure carbolic acid. Three or four treatments is all that is necessary to completely cure them.

Ulcerative colitis often begins in the rectum before it extends higher up in the colon. The diagnosis is thus made early enough to begin treatment with mineral oil retention enemas. The patient is always given instructions as follows: The enema should be given at bedtime. Plan to do it the very last thing so you do not have to get up again. Introduce the rubber tube, well oiled, in the rectum for a distance of three or four inches. Pour eight tablespoonfuls of oil into the funnel slowly. Lie on the back with the head low. When you pull the tube out have a soft cloth or towel handy and hold it over the rectum until all desire to pass the oil is over. It is necessary to retain the oil all night.

Years ago when I first began to employ oil enemas I used cotton seed oil and soon found that it produced extensive skin eruptions. Resorting to the mineral oil for the enemas, I found it produced no such symptoms, inasmuch as no bacteria will grow in the presence of it. I experimented with it by adding barium to the oil and found it reached the cecum by reverse peristalsis in one hour's time. It is curative in early

stages of ulcerative colitis very rapidly and often even in later stages of this disease.

In *pruritis ani,* where the skin is much thickened, applications of pure coal tar prove very efficacious. The treatment should be given every third day and the patient instructed not to wash the tar off. Usually six to eight treatments are all that are necessary to cure the condition. To prevent resurrence, the 10% Super Tah Ointment should be used at bedtime and after defecation. This ointment is white and will not stain.

Many *hemorrhoids* are operative in character, but others can be completely cured by dilatation with a proctoscope preceded, of course, by the cocaine solution. I have never known this solution to produce any discomfort or reaction in the patient.

In the treatment of *constipation* one should avoid cathartics as much as possible. There is one form, the very long atomic colon, that is best treated by the administration of fluid extract of cascara sagrada. It is bitter in taste and should be given in capsules in drop dosage before each meal. The patient soon learns to regulate the proper dosage. In the ordinary form of constipation the administration of Metamucil, two heaping teaspoonfuls in a glass of cool water every morning upon arising, and the forming of the after-breakfast habit of defecation, for which instructions to patients are given below, are usually effective. The patient is instructed to try to have the bowels act immediately after breakfast, take deep breaths and make deep pressure on the left side of the abdomen, repeating this pressure again and again until complete bowel action results. In treatment of cases of very spastic iliac colon, the small Pil Lapactic is very useful in conjunction with the Metamucil, the one Pil Lapactic being taken each night at bedtime.

634 North Grand Blvd.

A New Concept of Vesical Innervation and Its Relationship to Bladder Management Following Abdominoperineal Proctosigmoidectomy

The Departments of Urology and Anatomy of Temple University School of Medicine studied the problem of innervation of the bladder. As the result of this study, it was established that nerves reach the bladder by two distinct and separate routes reported by Lawrain E. McCrea and Donald L. Kimmel in the *Am. Jour. Surg.* [*84*:518-523 (November) 1952]. The first route is through the inferior hypogastric and pelvic plexuses. The second route is a newly described pathway going to the bladder by a perivascular route, the nerves arising from the second, third and fourth sacral roots and reaching the bladder along the blood vessels in the endopelvic fascia within the lateral walls of the bony pelvis. Many of these nerves course to their termination on the ureter and bladder independently of the pelvic plexus. Other nerves join the pelvic plexus anteriorly to the rectum in the lateral wall of the rectovesical fossa. Thus, it is believed that the presence of these nerves in their lateral position explain normal bladder function following removal of the rectum on whose lateral walls is located the pelvic plexus. Therefore, it is considered that trauma to the nerve supply of the bladder rather than obstructive uropathy is the cause of vesical dysfunction following extensive pelvic surgery, especially abdominoperineal proctosigmoidectomy. Time and careful maintenance of the bladder free from infection or obstructive uropathy will insure a return to normal function of the urinary bladder in nearly every instance.

D.C.C.

Anatomy of the Ano-Rectal Region*

DAVID S. JONES, M.D.†
Chicago, Ill.

In the past it has been customary for the specialist to consult the textbooks of Anatomy to learn the details in any specific location. However, with the development of the specialties in which many individuals work entirely in a small subdivision of the body, it has become necessary for the anatomists to turn to the specialists for details in anatomy. To be sure, anatomists still supply much of the detailed information in the field of Anatomy, but this information is available in the textbooks and journals of the specialty fields. Much of this detailed information has not yet found its way into the anatomy textbooks. This treatise is written, not because I have any illusions that my knowledge of anatomy in this region is greater than yours, but because I believe that a better understanding of problems will be reached by a closer association between anatomists, pathologists, proctologists and other specialists.

First, let us consider the anatomy surrounding the anus. This area, comprising the ischio-rectal fossae, is filled with fatty tissue which allows easy expansion and contraction of the rectum and anal canal. The medial and superior boundaries of these spaces are the levator ani and external sphincter muscles. The lateral wall is composed of the fascia over the obturator internus muscle, and the ischial tuberosity. The pudendal vessels are enclosed within the obturator fascia. The inferior hemorrhoidal vessels and nerves traverse the fossa after leaving the pudendal canal. In the teaching of the anatomy, we do not as a rule subdivide the external sphincter and muscle into the three parts which you ordinarily consider in Proctology, but the arrangement of the superior part of this muscle which is known as the deep external sphincter, is important. The anterior and posterior fibers are described as encircling the anal canal, whereas the more superficial fibers attach to the anococcygeal line posteriorly and the central point of the perineum anteriorly. This means, then, that superior to the superficial portion of the muscle the ischiorectal fossa follows the course of the deep fibers across to the opposite side. This constitutes the deep postanal triangle. The superficial postanal triangle is between the skin and the anococcygeal ligament. It is possible for the horseshoe-shaped abscesses to occur in the continuation of the ischiorectal fossae across the midline. It is not a very direct communication. I would guess that abscesses do not cross from one side to the other but that when a horseshoe abscess is present it has resulted from a primary infection in the midline, which has spread to both sides. It seems to me that the spread in other directions would be much easier in a unilateral abscess.

The levator ani separates the perineum from the pelvis and also the rectum from the anal canal. The spaces superior to the levator ani constitute the pelvirectal spaces on either side of the rectum and the retrorectal space posterior to the rectum. The peritoneum covers the rectum almost completely at its upper end, on the sides and

* Presented at the Fourth Annual Convention, International Academy of Proctology, Chicago, Ill., June 1952.

† Associate Professor of Anatomy, Stritch School of Medicine of Loyola University.

in front in the middle portion, and only on the anterior aspect in the upper part of its lower third.

The internal aspects of the anal canal and rectum are described quite differently in various textbooks. The most consistent features are the dentate line composed of the anal valves at the lower end of the rectal columns. There is much disagreement as to whether the rectal columns lie in the rectum or in the anal canal. This disagreement is reflected in the terminology, for many textbooks call these folds anal columns and others rectal columns. There are undoubtedly a considerable amount of variations as to the position of this dentate line. But regardless of this variation the dentate line is the point at which the stratified squamous epithelium of the anal canal changes to the simple columnar epithelium of the digestive tract. Below the dentate line is located Hilton's line. This line is described as the interval between the internal and external sphincter muscles. If one compares the figures in various textbooks it is apparent that this line is in no fixed position. It may be significant that practically all of the illustrations of this relationship are drawings rather than photographs.

An important anatomical detail of this region is almost entirely lacking from textbooks of anatomy and histology. The anal glands are derived from the stratified squamous epithelium. Their ducts open into the crypts behind the anal valves. These are compound glands that extend out into the muscular layers of the rectum or anal canal. They are located near the point where the levator ani muscles join the walls of the digestive tube. Thus, infections that start in these glands can invade the loose connective tissue of the ischiorectal fossae or the pelvirectal spaces. If this is true, then these glands are a most important part of the anatomy of the anorectal region and should be thoroughly described in the textbooks. The region inferior to the dentate line gets its blood supply and innervation from the inferior hemorrhoidal vessels and nerves. The rectum superior to the dentate line is supplied with blood from the paired middle hemorrhoidal vessels, and the single superior hemorrhoidal vessels. The lymphatics of the rectum drain into the sacral and hypogastric chains, whereas from the anal canal the flow is to the inguinal nodes. The innervation above the dentate line is visceral rather than somatic as in the anal canal. The mucosa of the rectum is smooth and is thrown into semilunar folds constituting the rectal valves. There is rather an abrupt change of the smooth mucosa at the rectosigmoid junction into the folded and irregular mucosa of the sigmoid. The rectosigmoid junction is at the level of the third sacral vertebra and at the point of the disappearance of the sigmoid mesocolon. The rectum is rather loosely attached by the endopelvic fascia in the pelvis, whereas the anal canal is quite strongly attached by means of the levator ani muscles, the anococcygeal ligament and the central point of the perineum. In the male some rather strong musculofibrous bands extend from the anorectal junction forward to the fascia around the base of the prostate. These bands are the posterior part of the pubo-rectalis ligaments. Some textbooks describe these ligaments as extending from the rectum to the membranous urethra. This seems to me a gross misconception. In the female the rectum is attached quite firmly to the perineal body and the pubo-rectalis ligaments are not very much in evidence because if present, they have to extend around the vagina. I do not think there are definitely dissectable pubo-rectalis bands in the female perineum.

Such a brief and random discussion of the anorectal region is by no means comprehensive and no doubt many important relations have been omitted. I hope that the major anatomical features important to the proctologist have been discussed.

5567 West North Avenue

The Utilization of Dextrose, Levulose, and Invert Sugar by Normal and Surgical Patients

JACOB JOSEPH WEINSTEIN, M.D., F.A.C.S., F.I.C.S., F.I.A.P.†
JOSEPH H. ROE, Ph.D.‡
Washington, D. C.

PART II*

Table 1 gives the average values for the grams and per cent of sugar lost with various quantities of dextrose, levulose, and invert sugar infused at similar rates.

Comparison of rapid infusions postoperatively of 100 grams of dextrose, levulose, and invert sugar.—It has been reported that surgery, and, or trauma produce a transient impairment of dextrose tolerance.[15,16,17] This effect is manifested by an increased glycosuria with intravenous injections of dextrose at rates well tolerated in normal subjects and by a transient diabetes.[18] Previous data with 100 grams of invert sugar injected in 1 hour in normal adults revealed a 2.4 gram loss of sugar. Because it is the goal of parenteral therapy to give the largest amount of nutrition in an average amount of fluid in the shortest period of time, we have studied the postoperative tolerance for invert sugar in patients receiving 100 grams in 1,000 cc. of water in 1 hour. If, at this rate, the degree of glycosuria is small, then one could readily administer the 3,000 cc. of fluid required for each 24-hour period in 3 hours with about 1,200 calories as carbohydrates.

Graph 1 presents the rate of infusion and grams of sugar lost in the 4 hour study period for each test with 100 grams of dextrose, levulose, and invert sugar in 1,000 cc. of water on the first postoperative day.

Dextrose showed the greatest loss of sugar, levulose a lesser amount, and invert sugar exhibited the least amount of glycosuria.

All of the patients receiving dextrose showed glycosuria above 7.7 grams; the range of loss was between 7.7 and 33.2 grams, and averaged 16.6 grams. Rates fluctuated between 1.2 and 2.5 Gm. per kilogram per hour. Most of the infusions were administered around the average figure of 1.6 Gm. per kilogram per hour. The degree of glycosuria tended to increase with rate of infusion, though many variations appeared. The tendency to linear relationship of rate of infusion and

* Concluded from March issue, pages 21 through 30.

degree of glycosuria is demonstrated in Table 2.

Average losses of 16.6 grams with the injection of 100 grams of dextrose in 1 hour represent a loss of 66 calories. If 3 infusions were given and the losses remained the same for each infusion, the patient would lose 50 grams of sugar or 200 calories.

Levulose produced the second greatest loss of sugar. The average amount of urinary sugar was 8.6 grams; the lowest amount was 2.7 grams and the greatest quantity excreted was 15.8 grams. The rates of administration ranged between 1.1 to 3.1 Gm. per kilogram per hour, and averaged 1.7 grams. Here again, there is a tendency for the degree of mellituria to parallel the rate of administration; at 1.1 Gm. per kilogram per hour the loss was 2.7 grams and at 3.1 Gm. per kilogram per hour, 10.5 grams were excreted. The unpredictability of rate and degree of glycosuria is revealed in the finding of the largest amount of sugar excreted, 15.8 grams, at a rate of 1.6 grams per kilogram per hour.

The superiority of invert sugar described in normal patients was observed again in this postoperative study. At an average rate of 1.4 Gm. per kilogram per hour, the loss with invert sugar was 6.4 grams, and the range was between 1.7 and 10.3 grams. The average loss for patients given invert sugar was 2.2 grams less than with levulose and 10.2 grams less than with dextrose. The infusion of 100 grams of dextrose in 1 hour postoperatively caused an average glycosuria 2.5 times that found with invert sugar at the same rate.

The same experiments were conducted on the second postoperative day, and the results are similar to those noted on the first day. One hundred grams of invert sugar in 1,000 cc. of distilled water infused at 1.5 Gm. per kilogram per hour showed an average loss of 6.6 grams; 100 grams of levulose at 2.1 grams per kilogram per hour, yielded an average loss of 10.3 grams; and administration of the same amount of dextrose at a rate of 1.3 Gm. per kilogram per hour resulted in an average urinary sugar excretion of 17.7 grams.

Table 3 compares the average rates and the average grams of sugar excreted for the infusion of 100 grams of dextrose, levulose and invert sugar in 1 hour to patients

TABLE I

AVERAGE GRAMS AND PER CENT OF SUGAR RETAINED WITH DIFFERENT QUANTITIES OF DEXTROSE, LEVULOSE, AND INVERT SUGAR BY NORMAL SUBJECTS

Grams	Sugar	Rate of Injection gm./kg./hr.	Sugar Lost Average Grams	Sugar Retained Average Per Cent
50	dextrose	0.78	3.1	93.8
50	levulose	0.76	2.2	95.7
50	invert sugar	1.55	0.4	99.2
50	dextrose	1.57	9.1	81.7
50	invert sugar	1.59	0.4	99.2
100	dextrose	1.52	13.3	86.7
100	invert sugar	1.58	2.4	97.6
150	dextrose	1.56	16.9	88.6
150	invert sugar	1.54	5.5	96.5

These figures show the superiority of invert sugar over dextrose and levulose in normal subjects when injected under similar circumstances and at similar rates.

100 grams of invert sugar may be given in the same period as 50 grams of dextrose or levulose with less glycosuria.

on the first and second postoperative days.

No difference in glycosuria was seen for the first or second postoperative days. Hence, there is no difference in sugar tolerance for these two days. Our data also do not show a marked intolerance of patients after surgery to rapid infusions of carbohydrates on the first or second postoperative days, as compared to normal subjects receiving the same sugars at the same rates. The loss in normal individuals with 100 grams of invert sugar in 1 hour is 2.4 grams; after surgery on the first postoperative day it averages 6.4 grams, and on the second postoperative day 6.6 grams. With 100 grams of dextrose in normal adults at 1.5 Gm. per kilogram per hour the average sugar excretion was 13.3 grams as compared with 16.6 grams on the first postoperative day and 17.7 grams on the second. These differences are not very significant.

Effect of 300 grams of invert sugar infused in 3 hours on the twenty-four hour nitrogen excretion after surgery.—Because we have advocated rapid infusions of invert sugar, 100 grams in 1 hour, we have determined the effect of the ingestion of 300 grams of invert sugar (1,200 calories or basal caloric requirement) during the 24-hour period upon the nitrogen catabolism of patients undergoing subtotal gastrectomy for duodenal ulcer. No nitrogen was administered during the 4 day study period. The total fluid intake for each 24-hour period was 3,000 cc. of distilled water. Each 1,000 cc. of water contained 100 grams of invert sugar and was administered intravenously in 1 hour. The intravenous infusions were given at 8 a.m., 2 p.m. and 8 p.m. No fluids were permitted orally, and a nasal tube in the stomach was allowed to drain by gravity without suction.

Six cases were studied under similar conditions. The total nitrogen output for the first day for the 6 cases varied between 9.7 and 11.9 grams and averaged 10.6 grams; for the second postoperative day the nitrogen output ranged between 8.3 and 11.5 grams, and averaged 10.6; for the third postoperative day the lowest nitrogen excretion was 8.3 grams and the highest was 10.1 grams, 9.0 grams being the average. On the fourth day the nitrogen excretion dropped rather precipitously to an average of 5.6 grams with a range between 4.5 to 6.9 grams. A decrease in nitrogen excretion on the fourth postoperative day is a frequent finding in nitrogen balance studies in surgical patients. There is a natural tendency for patients to "right" themselves around the third or fourth day after surgery. This probably represents the termination of the "stress" period.

TABLE 2

RELATIONSHIP OF RATE OF INFUSION TO DEGREE OF GLYCOSURIA WITH DEXTROSE POSTOPERATIVELY

Range of Rate	Range of Sugar Lost grams	Sugar Lost average grams
1.20 — 1.25	7.74 — 13.57	10.59
1.30 — 1.50	8.83 — 33.21	16.74
1.53 — 1.70	4.53 — 27.46	15.20
1.78 — 1.90	14.14 — 29.41	19.44
2.53	26.88	26.88

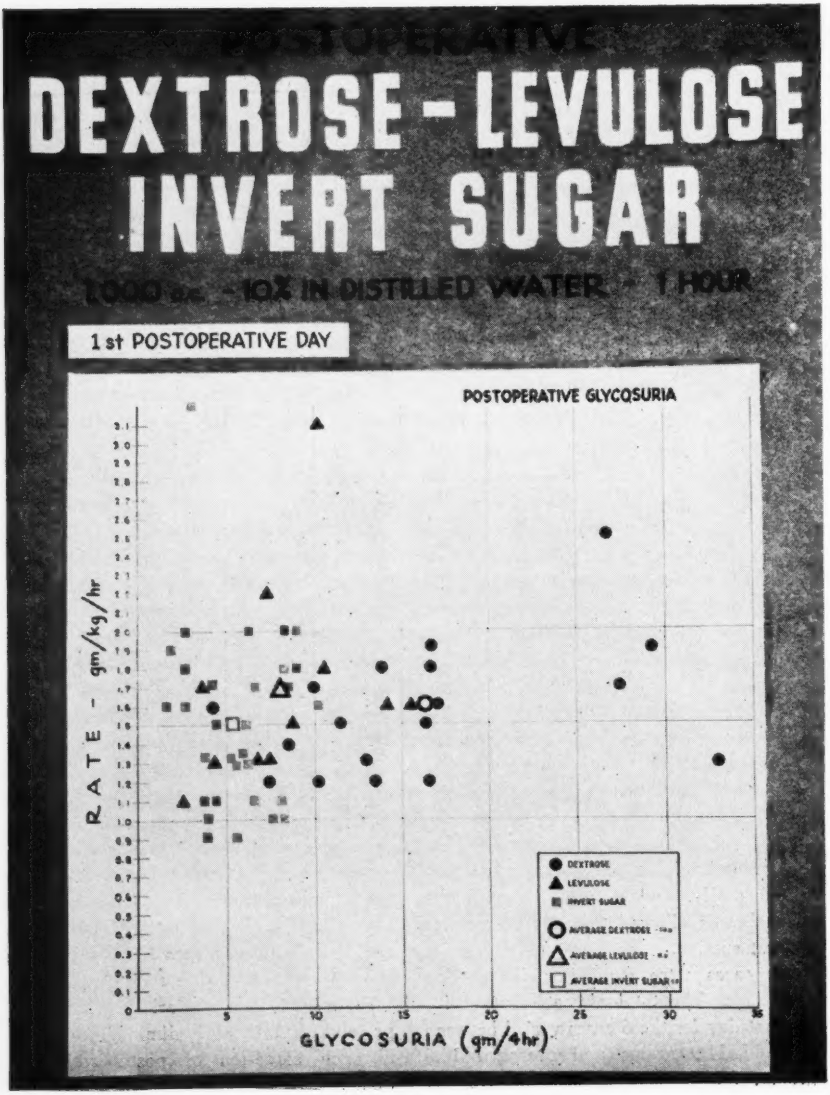
These figures show a tendency to linear relationship of rate of infusion to grams of sugar lost. Variations are seen and are unpredictable.

Our figures indicate that 1,200 calories as invert sugar prevent an excessive catabolism of body proteins. Textbooks[19,9,20] accept from 8 to 10 grams of nitrogen per 24 hours as the average normal urinary nitrogen in adults in adequate caloric and nutritional balance. In previous studies of patients undergoing gastrectomy without planned carbohydrate intake, the nitrogen output varied between 15 and 23 grams per 24-hour period.[21]

Our data infer that the excessive nitrogen loss frequently seen after surgery or trauma is in part due to an inadequate carbohydrate intake. Carbohydrates spare proteins and thereby diminish the daily nitrogen excretion of postoperative patients.

The average cumulative nitrogen loss for the 4 day study period for the 6 patients is about 36 grams, or 225 grams of body protein, which is equivalent to about 2 pounds of body weight. Such low total protein losses protect the postoperative patient and prevent serious protein deficiencies in short-term illnesses.

GRAPH I



Discussion

In recent years there has been a considerable interest in the nutritional problems of surgical patients. The patient who cannot take an adequate diet by mouth should be fed supplementarily by vein, and the patient who cannot take any food by mouth must be maintained totally by parenteral feeding if serious nutritional deficiencies are to be prevented.

At first our interest was drawn to the importance of nitrogen. Nitrogen metabolism has been studied extensively,[21,22,23,24] and it has become apparent that after surgery there is an increased nitrogen catabolism and that patients require nitrogen far above the needs of normal individuals. If the nitrogen is not replaced, protein deficiency and hypoproteinemia develop. Protein hydrolysates were developed for infusion,[24,25] and studies showed that these preparations could maintain nitrogen balance.

However, it soon became obvious that the administration of a 5 per cent protein hydrolysate solution in water was inadequate because the greater part of that injected was metabolized by the body for energy and wasted in the urine.[26,27] Dextrose was added to a 5 per cent concentration of protein and better nitrogen balance was obtained.[30] But yet, a goodly portion of the protein infused was still being wasted and tissue nitrogen was also appearing in the urine in considerable quantities. More dextrose, therefore, was added to spare the protein infused and to decrease tissue protein catabolism. When 10 or 15 per cent concentrations of dextrose were added to 5 per cent protein hydrolysate solution, protein conservation and tissue protein restitution were achieved with total parenteral alimentation in postsurgical patients.[28] However, two major disadvantages appeared on the scene: one was the low tolerance rate of dextrose. The infusions, therefore, had to be given very slowly to prevent glycosuria. The second disadvantage was the vein sclerosis which frequently occurred with concentrated mixtures of protein and dextrose. It then became evident that the use of dextrose as the carbohydrate for intravenous therapy would demand long, tiring, and inconvenient infusions of dilute solutions in surgical patients. These infusions also required more nursing and physician supervisory care. Last but certainly not least, slow infusions exhaust patients and confine them to bed, for most of their waking hours. "I laid there all day with my arm out, and became so nervous and tired that I couldn't rest, eat or find a comfortable

TABLE 3

COMPARISON OF DEGREE OF GLYCOSURIA FOR THE INFUSION OF 100 GRAMS OF DEXTROSE, LEVULOSE, AND INVERT SUGAR IN ONE HOUR TO PATIENTS ON THE FIRST AND SECOND POSTOPERATIVE DAYS

Sugar	First Postoperative Day		Second Postoperative Day	
	average rate of infusion gm./kg./hr.	urinary sugar grams	average rate of infusion gm./kg./hr.	urinary sugar grams
dextrose	1.6	16.6	1.3	17.7
levulose	1.7	8.6	2.1	10.3
invert sugar	1.4	6.4	1.5	6.6

There is little difference in the amount of sugar lost between the first and second postoperative days for each sugar studied. Invert sugar shows the least amount of glycosuria of all sugars.

Invert sugar shows the lowest average amount of glycosuria, 6.4 grams; levulose second greatest loss, 8.6 grams; and dextrose the greatest loss of sugar, 16.6 grams.

spot in the bed", is a typical remark of a patient who has a long and tiring intravenous infusion.

The ideal intravenous infusion should require a minimum period of time, contain a maximum amount of nutritional material, the least fluid volume, and be free of reaction and readily available.

Because dextrose must be given slowly[3] (30 to 40 grams per hour), in dilute solutions, if glycosuria and its associated diuresis are to be avoided, we have investigated the rapid infusions of concentrated solutions of dextrose, levulose, and invert sugar in normal subjects and postoperative patients. With rapid infusions of concentrated solutions of carbohydrates, the infusions for each 24 hour period can be cut down to 2, 3 or 4 hours in contrast to 9, 10, 11 or more hours if slow infusions are adhered to.

From the previous studies we have made,[4,10,11,13,29] it is apparent that invert sugar given to normals or to postoperative patients, in single controlled rapid intravenous infusions, is better retained by the body than either dextrose or levulose administered separately. The rapid infusions of 50, 100 and 150 grams of invert sugar in 30, 60 or 90 minute periods respectively, result in a greater retention of sugar than found with dextrose at same rates and concentrations.

The increased glycosuria noted with infusion of dextrose at a rate of 50 grams in 30 minutes (1.5 Gm. per kilogram per hour) in the average normal adult produces a concomitant diuresis.

The association of diuresis with glycosuria is best seen in the comparison of the urinary volumes obtained with 50 grams of dextrose in 1,000 cc. of saline at 0.78 Gm. per kilogram per hour and with 50 grams of dextrose in 500 cc. of water at 1.5 Gm. per kilogram per hour. At the slower rate, 1/3 of the total fluid intake was recovered in the urine with a mild glycosuria; whereas, with the faster rate, glycosuria was equal to 18 per cent of the 50 grams infused, and the urinary output was equal to 2/3 of the fluid intake. In contrast, the findings with 50 grams of invert sugar in 1,000 cc. of saline at 1.5 Gm. per kilogram per hour showed a urinary loss of between 170 to 415 cc. and a total glycosuria of less than ½ a gram.

The ill postoperative patient requires enough carbohydrate to prevent starvation ketosis and to minimize protein catabolism.[31,32,33,34] The more carbohydrate retained, the less likely the development of ketosis, the bigger the glycogen stores, and the less the protein that is burned for calories. Lusk's experimental work[35] has shown that the metabolism of sugar ingested is increased by an increase in the amount of sugar in the blood. Staub[36] has observed a better utilization of a second dose of dextrose taken orally one hour after a first one. These reports and others show that the utilization of intravenously administered carbohydrates is not a static phenomenon, but that after a warming up period,[31] larger amounts can be retained by the body. Winslow[37] described 10 per cent dextrose as his choice of solution for patients requiring carbohydrate in the presence of liver damage. Winslow showed that the administration of 10 per cent dextrose solution at a rate similar to that ordinarily used with 5 per cent dextrose solution is without harmful effects and supplies the patient with 93 per cent more carbohydrate than an equal volume of 5 per cent dextrose solution. Cain and Belk[38] studied the assimilation rate of intravenously injected dextrose in hospital patients and found that the amount of dextrose retained is directly proportional to the amount of dextrose given per hour. They say that, if glycosuria is disregarded, the maximum amount of glucose assimilation is attained in the shorest time.

In our study of the comparative utilization of dextrose in various amounts at controlled rapid rates, the advantage of giving more concentrated solutions is revealed by a retention of more of the extra

grams administered above 50 grams, even though glycosuria occurs. The per cent of sugar retained of that given for 50 grams administered in 30 minutes is 81.7; for 100 grams in 1 hour, 86.7, a gain of 45.8 grams; and for 150 grams in 1½ hours, 88.6 per cent, a gain of 46.4 grams above the 100 grams and 99.2 grams more than with 50 grams in 30 minutes. These figures illustrate the capacity of the normal, nondiabetic individual to utilize dextrose in unlimited quantities. This finding illustrates the "paradoxical law of dextrose utilization" as described by Allen.[39] In clinical practice, this phenomenon should be applied more often in the management of patients requiring carbohydrate therapy. Pareria and Somogyi[31] have described a method of increasing dextrose utilization without glycosuria by starting the infusion at slow rates and gradually increasing the speed. This method requires close supervision and repeated urinalysis and it is the common practice in hospitals to give all infusions as a single infusion at a controlled rate of injection.

Invert sugar has the same inherent capacity to be utilized in unlimited quantities with increasing doses at constant rates as does dextrose. Invert sugar has the added advantage that at the same rapid rate advocated herein, (1.5 Gm. per kilogram per hour), more sugar is retained by the body, glycosuria is less than with dextrose, and diuresis does not occur. With 50 grams of invert sugar infused in ½ hour, 99.2 per cent is retained; with 100 grams in 1 hour, 97.6 per cent is retained; and with 150 grams in 1½ hours, 96.4 per cent is assimilated.

Postoperative studies with rapid infusions of the three sugars show little differences in rate of assimilation of each sugar in normal humans and in patients after major surgery on the first and second postoperative days, as is currently being described in the literature. The data do show a rather close relationship between rate of infusion and grams of sugar spilled in the urine.

Throughout this study, invert sugar was better retained than either dextrose or levulose. It has been suggested when invert sugar is administered, two different sugars are being given together. Therefore, "the resulting excretion of sugar in the urine will be determined by the separate blood levels of the sugars, not by the sum of their concentrations in the blood."[40] We determined the separate components of the total reducing substance in the blood and urine with invert sugar infusions, and our data showed that each sugar, that is, dextrose and levulose, was retained better in combination with each other than when given alone. The administration of 100 grams of invert sugar in 1 hour produced maximal total reducing substances in the blood at the end of the infusion of 226 mg. per cent, of which 35 mg. per cent was levulose. Hence, the actual dextrose in the blood at the end of the infusion was 191 mg. per cent.

In our study of 50 grams of dextrose given alone at 0.75 Gm. per kilogram per hour, the maximal blood sugar level averaged 251 mg. per cent. The true dextrose level in the blood with 50 grams of dextrose as part of 100 grams of invert sugar, therefore, was less than when the same amount was given separately. A separate clinical experiment by Weinstein and Roe to be reported describes a reduction in the total circulating blood reducing substances and a lowering of the dextrose tolerance curve with intravenous dextrose infusion when levulose is injected separately in another arm vein. Fletcher and Waters[12] demonstrated in dogs that levulose injected intravenously lowers the dextrose tolerance curve and they advanced the hypothesis that levulose exercises a catalytic influence on the utilization of dextrose.

Further proof for the enhanced utilization of dextrose and levulose in combination as invert sugar is likewise shown by the lower total glycosuria. Smaller losses

of dextrose and levulose, as determined by chemical methods, occur with the infusion of invert sugar than when each sugar is given separately in the same amount and at the same rate. For example, with 100 grams of invert sugar at 1.5 Gm. per kilogram per hour, the total glycosuria was 2.4 grams; the total levulose was 0.7 grams and the dextrose was 1.7 grams. When 50 grams of dextrose were injected at 0.75 Gm. per kilogram per hour, the average total excretion of glucose was 3.1, or 1.4 grams more than when given with levulose in invert sugar. When 50 grams of levulose were infused at 0.75 Gm. per kilogram per hour, the total glycosuria was 2.2 grams, and the levulose, measured by Roe's method,[6] was 1.7 grams, or 1.0 grams above that seen when 50 grams of levulose were administered as a component part of 100 grams of invert sugar.

That levulose is removed more rapidly from the blood stream than dextrose was observed repeatedly throughout this study. Levulose blood levels with separate infusions of levulose, or in combination with dextrose as invert sugar, are only moderately elevated. Since the renal threshold for levulose is described as low,[1] well below that of dextrose, the minimal amount of levulose spilled is additional evidence for the rapid removal of levulose from the blood stream.

We feel that our data and the literature at this time suggest that a combination of both dextrose and levulose as invert sugar enhances the utilization of each separate sugar beyond that seen when each sugar is given alone.

The postoperative nitrogen sparing effect of intravenous invert sugar is described in the data of patients undergoing subtotal gastrectomy for chronic duodenal ulcer. A daily urinary nitrogen of 9 to 10 grams, as was seen, is considered the average daily output for normal subjects in caloric and nitrogen balance. The question as to how much carbohydrate is necessary in surgical patients to achieve maximal protein sparing is controversial. Elman[17] is of the opinion that no difference in nitrogen excretion occurs with 100 or 200 grams of carbohydrate per 24 hours; whereas, Pareira and Somogyi[31] feel that 200 to 350 grams of dextrose, well distributed over a 24 hour period is necessary; and Wren and Sachar[33] found a greater incidence of ketonuria with less than 150 to 200 grams of dextrose. At bed rest the minimal requirement for surgical patients is between 1,400 and 1,600 calories, probably closer to 1,600 calories.

An adequate amount of intravenous carbohydrate prevents ketosis, builds and stores glycogen, and diminishes protein catabolism. We adhere, therefore, to the idea of administering at least 300 to 400 grams of carbohydrate per day to the average patient on total parenteral alimentation.

Using 10 per cent invert sugar for parenteral carbohydrate alimentation, one can give 300 grams in 3 hours at the rate we have suggested, or the same can be accomplished with two infusions of 15 per cent invert sugar in the same 3 hour period with a reduction of total fluid intake by 1,000 cc.

Is there a sudden increase in blood volume with rapid infusions of concentrated invert sugar, and can the increase in plasma volume produce cardiovascular embarrassment? Cardiac patients bordering on decompensation may develop cardiovascular embarrassment under these circumstances. In fact, cardiac failure may develop in this type of patient with slow administrations of crystalloid solutions, especially with the solutions of physiological saline. Most surgical patients do not fall into the class of cardiovascular subjects. The intravenous administration of 1,000 cc. of 10 per cent solution is the infusion of 16.7 cc. per minute to the average 70 kilogram adult, or 14 cc. per kilogram per hour. Serial hematocrits determined before, during and after the infusion did not reveal a marked increase

in blood volume. The intravenous administration of 1,000 cc. of 10 per cent invert sugar in 1 hour to average normal subjects produces a maximal hemodilution at the end of the infusion which is equivalent to approximately a 420 cc. increment in blood volume. In all cases studied the hematcorit values have returned to normal within 3 to 4 hours after the end of the injection. One thousand cubic centimeters of a 15 per cent solution infused in 1½ hours gave a maximal hemodilution representing approximately a 450 cc. dilution of the plasma. Here, as seen with the 10 per cent solution, the hemodilution has disappeared at the 3 hour period after the end of the infusion. Butler and Talbot[41] in their review on parenteral fluid therapy say, "Since the infusion of 10 to 20 cc. of 5 per cent dextrose per minute for several hours has only a slight accumulative effect on the blood volume or plasma concentration of the adult, the infusion rates specified above appear rather conservative unless infection, trauma or cardiovascular function predisposes to pulmonary edema or cardiac failure."

All infusions in this study have been carefully observed; blood pressure readings, pulse rates and temperatures were recorded during and after the injections, and we have never seen any clinical manifestations of cardiovascular overloading, yet many of our test subjects were 60 or more years of age.

No vein sclerosis or irritation was noted with 10 or 15 per cent invert sugar in water.

In clinical practice we do not suggest the administration of 3,000 cc. of fluid to be given at one continuous infusion. Rather, we recommend the infusion of each 100 grams of invert sugar to be given during 1 hour and in no more than 1,000 cc. of fluid. Subsequent infusions are well spaced during the waking day. The following schedule has been adopted by us: the first infusion is given at 8 a.m.; the second at 2 p.m.; and the third at 8 p.m. This regime leaves a 5 hour rest period between each infusion, and therefore, adequate rest periods and adequate time for ambulation. Also, such hours of infusion fit well into the activities of most hospital wards and their personnel.

Our clinical investigation shows that invert sugar, injected rapidly by vein, is the carbohydrate of choice for parenteral carbohydrate therapy. With the administration of invert sugar, a greater retention of sugar in a short space of time, without the introduction of additional fluid is achieved, and therefore, more calories per unit of time are obtained. Cannon[42] is of the opinion that the most important problem to solve in parenteral therapy is that of satisfying the basic caloric requirements.

The use of invert sugar should prove to be a step forward in the solution of problems associated with total parenteral alimentation of surgical patients.

Summary

1. A comparative clinical investigation of dextrose, levulose and invert sugar in normal subjects and in surgical patients before and after surgery showed that invert sugar is a better carbohydrate than dextrose or levulose for rapid infusions.

2. With 50 gram doses the tolerance rates for dextrose and levulose are below 0.75 Gm. per kilogram per hour: for invert sugar the tolerance rate is near 1.5 Gm. per kilogram per hour. Therefore, 50 grams of invert sugar may be given twice as fast as an equal amount of dextrose or levulose without glycosuria.

3. In equal amounts and at similar rates, in nonoperative and postoperative patients immediately after surgery, invert sugar showed the lowest degree of glycosuria, and dextrose the greatest loss

of sugar in the urine. With levulose, urinary losses were between those of dextrose and invert sugar.

4. The data suggest that levulose is superior to dextrose but not to invert sugar for intravenous administration.

5. Glycosuria of definite proportions was always accompanied by diuresis. Dextrose produces the greatest diuresis because glycosuria is prominent with this sugar. In contrast, no abnormal diuresis was seen with invert sugar, because the glycosuria was small.

6. Increased rates of infusion increased the glycosuria though many unpredictable variations occurred. Increasing the amounts injected at constant rates increases the quantity of sugar recovered in the urine, but the greater part of the extra sugar injected is retained by the body. Both dextrose and invert sugar demonstrated the capacity to be utilized in almost unlimited quantities by normal individuals. Clinicians may achieve greater glycogen formation, minimize protein destruction and prevent ketosis more readily by applying this well known paradoxical law of sugar utilization.

7. Comparative analyses made upon normal and postoperative patients, with the three carbohydrates studied, revealed little difference in the sugar tolerance of the two groups of patients.

8. Intravenously injected levulose has a stimulatory effect upon the utilization of dextrose. The combination of dextrose and levulose in the form of invert sugar enhances the utilization of both sugars beyond that occurring when they are given separately.

9. Nitrogen excretion studies in patients undergoing subtotal gastrectomy for chronic duodenal ulcer on total parenteral carbohydrate alimentation (300 grams of invert sugar daily), without nitrogen intake, indicated that the excessive nitrogen loss frequently seen after surgery is in part due to inadequate carbohydrate intake. Parenteral invert sugar spares protein and minimizes protein catabolism in postoperative patients.

10. Careful clinical observations and blood volume changes, as measured by serial hematocrit determinations, showed that rapid infusions of concentrated solutions are safe in surgical patients. No cardiac overloading occurred. Many of the test subjects were over 60 years of age.

11. We adhere to the idea of administering at least 300 to 400 grams of carbohydrate per day to the average surgical patient requiring total parenteral alimentation. Since 10 per cent invert sugar can be infused in about 1 hour to the average adult, we recommend the following schedule when total carbohydrate therapy is indicated:

8 a.m.: 1,000 cc. of 10 per cent invert sugar
2 p.m.: 1,000 cc. of 10 per cent invert sugar
8 p.m.: 1,000 cc. of 10 per cent invert sugar

By this program patients have adequate rest periods, time for ambulation, and are not "tied down" to the bed all day for intravenous infusions.

12. Our results suggest that the administration of invert sugar may help to solve the important problem of satisfying the caloric requirements of patients on total parenteral alimentation.

Bibliography

1. Woodyatt, R. T.; Sansum, W. D.; and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar. J.A.M.A. 65:2067, 1915.
2. Wilder, R. M.; and Sansum, W. D.: D-Glucose Tolerance in Health and Disease. Arch. Int. Med. 19:311, 1917.
3. Lockhart, C. E.; and Elman, R.: Effect of Intravenous Glucose and Amino Acids in Glycosuria and Urinary Output in Humans. Surg., Gynec. & Obst. 88:97, 1949.
4. Weinstein, J. J.: Intravenous Infusions of Invert Sugar. Med. Ann. District of Columbia 19:179, 1950.
5. Gradwohl, R. B. H.: Clinical Laboratory Methods and Diagnosis, Vol I, ed. 4, pp. 59, 229. St. Louis: The C. V. Mosby Co., 1948.
6. Roe, J. H.: Colorimetric Method for Determination of Fructose in Blood and Urine. J. Biol. Chem. 107:15, 1934.
7. Somogyi, M.: Rapid Method for the Estimation of Urine Sugar. J. Lab. & Clin. Med. 26:1220, 1941.
8. Somogyi, M.: New Reagent for the Determination of Sugars. J. Biol. Chem. 160:61, 1945.
9. White, C. S.; and Weinstein, J. J.: Blood Derivatives and Substitutes. Baltimore: Williams and Wilkins Co., 1947.
10. Weinstein, J. J.: Comparative Utilization of Invert Sugar and Dextrose in Nondiabetic Human Beings. Med. Ann. District of Columbia 20:355, 1951.
11. Weinstein, J. J.: Parenteral Therapy with Invert Sugar. Ann. West. Med. & Surg. 4:373, 1950.
12. Fletcher, J. P.; and Waters, E. T.: Effect of Fructose on Glucose Tolerance Curve. Biochem. J. 32:212, 1938.
13. Weinstein, J. J.: Tolerance of Human Beings to Intravenous Infusions of Fifteen Per Cent Invert Sugar. J. Lab. & Clin. Med. 38:70, 1951.

14. Reinhold, J. G.; and Karr, W. G.: Carbohydrate Utilization. II Rate of Disappearance of Various Carbohydrates from the Blood. J. Biol. Chem. **72**:345, 1927.
15. Cooper, D. R.; Iob, V.: and Coller, F. A.: Response to Parenteral Glucose of Normal Kidneys and of Kidneys of Postoperative Patients. Ann. Surg. **129**:1, 1949.
16. Coller, F. A.; Campbell, K. N.; Vaughan, H. H.; Iob, V.; and Moyer, C. A.: Postoperative Salt Intolerance. Ann. Surg. **119**:533, 1944.
17. Elman, R.; Lemmer, R. A.; Weichselbaum, T. E.; Owen, J. G.; and Yore, R. W.: Minimum Postoperative Maintenance Requirements for Parenteral Water, Sodium, Potassium, Chloride and Glucose. Ann. Surg. **130**:703, 1949.
18. Pareira, M. D.; and Probstein, J. G.: Transient Diabetes in the Postoperative State. Ann. Surg. **133**: 299, 1951.
19. Best, C. H.; and Taylor, N. B.: Physiological Basis of Medical Practice, ed. 4. Baltimore: Williams & Wilkins Co., 1945.
20. Elman, R.: Parenteral Alimentation in Surgery. New York: Paul B. Hoeber, Inc., 1947.
21. Weinstein, J. J.; Protein Metabolism and Protein Hydrolysate. Monograph presented as exhibit, American Medical Assoc., June 1947.
22. Benditt, E. P.; Woolridge, M. A.; and Stepto, R.: Dynamics of Protein Metabolism; Relationship Between the Level of Protein Intake and the Rate of Protein Utilization by Protein Depleted Men and Rats. J. Lab. & Clin. Med. **33**:269, 1948.
23. Brunschwig, A.; Clark, D. E.; and Corbin, N.: Postoperative Nitrogen Loss and Studies on Parenteral Nitrogen Nutrition by Means of Casein Digest. Ann. Surg. **115**:1091, 1942.
24. Elman, R.: Parenteral Replacements of Protein with Amino Acids of Hydrolyzed Casein. Ann. Surg. **112**:594, 1940.
25. White, C. S.; and Weinstein, J. J.: Intravenous Injection of a Protein Digest Solution in Surgical Patients. Surg., Gynec. & Obst. **80**:313, 1945
26. Cannon, P. R.: Amino Acid Utilization in the Surgical Patient. J.A.M.A. **135**:1043, 1947.
27. Kozoll, D. D.; Hoffman, W. S.; and Meyer, K. A.: Nitrogen Balance Studies on Surgical Patients Receiving Amino Acids. Arch. Surg. **51**:59, 1945.
28. Ellison, E. H.; McCleery, R. S.; Zollinger, R. M.; and Case, C. T.: Influence of Caloric Intake Upon the Fate of Parenteral Nitrogen. Surgery **26**:374, 1949.
29. Weinstein, J.J.; and Lane, G. F.: Rapid Infusions of Invert Sugar. Med. Ann. District of Columbia **20**:186, 1951.
30. Weinstein, J.J.: Nutritional Management of Patients with Colon Surgery. Amer. J. Proctology **1**:110, 1950.
31. Pareira, M. D.; and Somogyi, M.: Rationale of Parenteral Glucose Feeding in the Postoperative State. Ann. Surg. **127**:417, 1948.
32. Pareira, M. D.; and Probstein, J. G.: Glucose Assimilation During Anesthesia and Surgery. Ann. Surg. **129**:463, 1949.
33. Wren, C.; and Sachar, L.: Amount of Carbohydrate Required to Prevent Ketonuria in Patients after Operation. Surg., Gynec. & Obst. **90**:349, 1950.
34. Elman, R.; and Weichselbaum, T. E.: Significance of Postoperative Glycosuria and Ketonuria in Nondiabetic Adults. Arch. Surg. **62**:683, 1951.
35. Lusk, G.; and Riche, J. A.: Metabolism After the Ingestion of Dextrose and Fat. J. Biol. Chem. **13**:27, 1912.
36. Staub, H.: Sugar Metabolism. Ztschr. f. Klin. Med. **93**:89, 1922.
37. Winslow, S. B.: Dextrose Utilization in Surgical Patients. Surg. 4:867, 1938.
38. Cain, J. C.: and Belk, W. P.: Assimilation Rate of Intravenously Injected Glucose in Hospital Patients. Am. J. Med. Sci. **203**:359, 1942.
39. Allen, F. M.: Studies Concerning Glucosuria and Diabetes, Chapter I. Cambridge, Mass.: Harvard University Press, 1913.
40. Parenteral Administration of Fructose. Editorial, Nutrition Reviews 9:173, 1951.
41. Butler, A. M.; and Talbot, N.: Parenteral Fluid Therapy. New Eng. J. of Med., 231:585, 621, 1944.
42. Cannon, P. R.: Some Current Problems in the Field of Parenteral Nutrition. Arch. Surg. 63:139, 1951.
43. Moyer, C. A.; and Klinge, F. W.: Volume and Composition of Parenteral Fluids and Clinical Problems of Body Fluid Equilibrium. Sou. Med. J. 40: 479, 1947.

900—17th Street, N.W.

Fellowship Key

A Fellowship Key of 10K Gold as illustrated, is now available to Fellows of the Academy of Proctology.

Applications for the Fellowship Key should be made to the office of the Secretary at 43-55 Kissena Blvd., Flushing. N. Y.

A check in the amount of $15.00 should accompany the order for the key.

The key may also be ordered at the time of the regular annual meeting in New York.

Trends in Surgery of the Rectum and Left Colon

EARLE I. GREENE, M.D., F.A.C.S.
J. MAJOR GREENE, M.D., F.A.C.S.
Chicago, Ill.

Carcinomas of the colon and rectum are of such frequent occurrence as to warrant appraisal by members of this group. When one remembers that nearly 75% of all carcinomas of the left colon can be recognized by the use of your finger and your sigmoidoscope, the early recognition of a malignant lesion becomes of greater importance. It is most unfortunate to see the number of cases treated for rectal bleeding or operated upon for hemorrhoids, whereas the major problem is a carcinoma of the colon. As more and more physicians are doing rectal examinations, and are becoming more proficient in the use of the proctoscope, such unfortunate errors will rapidly diminish. I have been frequently disturbed when a well known internist will send me a patient for proctoscopy, when with a little study and experience he can become adept in the use of the instrument. I feel that the statistics of Buie of the Mayo Clinic are worth repeating, again and again, namely, that more than 25% of his patients with carcinoma of the sigmoid and rectum had undergone recent rectal treatment or operation without recognition of the fact that they had carcinoma.

For years we have been aware that our results in carcinoma of the right colon were superior to those of the left colon. We learned early to remove a foot or more of the terminal ileum, the entire right colon and the hepatic flexure together with its mesentery. What did we accomplish by such a procedure? Not only did we remove the malignant lesion, but we also extirpated all the nodes within the mesentery. Because of this radical approach, our survival rates climbed rapidly.

In treating malignant lesions of the transverse colon our approach likewise has been more dynamic. Because of the blood supply to that portion of the bowel, the mid-colic artery, we were forced to remove the entire transverse colon with its nodal bearing mesentery.

What, for these many years, has been our attitude towards lesions of the left colon? The surgical profession has been extremely shy to remove large portions of the bowel together with its attached mesentery. We have been lulled into the belief that excising a few centimeters below the carcinoma, and several inches above the new growth, together with the extirpation of a wedge shaped portion of mesentery was sufficiently radical. At present most surgeons interested in bowel surgery are beginning to recognize that such a minor procedure must be abandoned.

The level at which nodal bearing mesentery is removed will depend to a great extent upon the surgeon's experience, his knowledge of lymphatic spread, and his ability to recognize suspicious nodes. Not many years have elapsed since the Kraske posterior resection operation, where the

superior hemorrhoidal artery was ligated just above the peritoneal reflection with elimination of few if any nodes, was abandoned. It was soon recognized as a makeshift procedure because of its inadequacy, and rightfully discarded. I have seen well-known surgeons, operating on lesions of the rectum or recto-sigmoid, open the abdomen, do their exploratory, tie off the superior hemorrhoidal artery at the promontory of the sacrum, cut the colon across, invert the distal loop, bring out the proximal bowel as a colostomy, and a week or ten days later do a wide perineal resection removing the bowel distal to the colostomy. Such a procedure is far from adequate and might, perhaps, be reserved for the very poor risk patient. Likewise it is not uncommon ot see surgeons ligate the artery where it crosses the left iliac artery or perhaps a little higher. Such procedures are too benign except if done for palliation or in the very poor risk. As a result of such a conservative attitude, carcinoma of the rectum and left colon has offered a less favorable prognosis.

Malignant lesions of the rectum and colon spread in several ways, namely, by way of the lymphatics, by way of the blood stream, and by direct extension. The most frequent of these three is the first, by way of the lymphatics. A carcinoma which has broken into a blood vessel, producing a disseminated cercinomatosis, is a hopeless condition. A lesion spreading by direct extension or by contiguity may offer much if extirpated radically. The lymphatics follow along the arteries supplying the bowel, and by resecting the blood supply together with the attached mesentery, the greater number of nodes will be removed. It has frequently been demonstrated that by the time the patient with a malignant lesion comes to operation, lymph node involvement, whether in the vicinity of the carcinoma or well beyond, has already taken place.

The lymphatic drainage of the rectum and colon are well known. In the left colon the lymphatics follow the inferior mesenteric artery and its branches. In the rectum, the lymphatic drainage follows the superior, middle and inferior hemorrhoidal arteries. It is important, however, to remember that the most important spread upwards is along the inferior mesenteric artery. We must no longer be content in ligating the distal branches of the inferior mesenteric artery, though the lesion is in the distal portion of the colon or rectum. It is of interest to note that Sir Berkley Moynihan as early as 1908 urged high ligation of the inferior mesenteric artery for carcinoma of the rectum and sigmoid together with lymph node removal up to the point of the origin of the inferior mesenteric artery from the aorta. For many years this advice remained neglected only to be reborn once again.

Whether we are planning to do an abdominoperineal resection for low lying carcinoma of the rectum or an anterior resection for carcinoma anywhere in the left portion of the colon, the greater the area of nodal removal possible, the more we can offer our patient. We must, therefore, remove the mesentery with its nodes, from its highest point, which is at the origin of the inferior mesenteric artery at the aorta. We feel that such a radical approach might perhaps mitigate the "second look" suggested by Wangensteen of the University of Minnesota. The blood supply of the transverse colon, the splenic flexure and descending colon will be adequate, by way of the mid-colic artery, to do either an anterior anastamosis or colostomy, or to bring the proximal bowel down to the anal area. The only exceptions, perhaps, will be found in the older group with evidence of considerable arteriosclerosis, or the occasional individual with a short midcolic vessel. It is important to remember, in successfully performing this procedure, to free the splenic flexure and the transverse colon to obtain sufficient length of bowel.

Why are we urging such a surgical ap-

proach to carcinoma of the rectum and colon? We are acutely aware of the rather high frequency of nodal metastasis in the proximal nodes, in the vicinity of the origin of the inferior mesenteric artery which otherwise would be missed unless the main vessel with its mesentery and nodes are removed. Malignant cells may be present in nodes adjacent to the growth, in the vicinity of the origin of the inferior mesenteric artery, with no malignant involvement of the intervening nodes. In a recent survey a little over 20% of resected cases showed this phenomenon. To leave such involved nodes near the aorta undisturbed defeats every principal of radical surgery for carcinoma.

How do we propose to treat carcinoma of the rectum and left colon? The peritoneum of the left colon in its entire length from the splenic flexure down to the pelvis is incised. The splenic flexure and the distal one-quarter to one-half of the transverse colon is freed. The inferior mesenteric artery is ligated as it emerges from the aorta. The parietal peritoneum from the right of the aorta to the marginal vessels of the mesentery of the left colon, from the transverse arm of the duodenum to the pelvic brim, together with all the nodes in the region of the aorta or inferior vena cava are removed; all the nodes in the hollow of the sacrum are likewise removed. Care must be taken not to injure the ureters. Should we be planning to do an abdominoperineal resection the rectum is dissected as far laterally as possible, the levators are freed and the pelvic rectum removed. The transverse colon is brought out as a colostomy. If an anterior resection is contemplated, the upper descending colon can be brought into the pelvis and anastamosed to the rectum. Because of the wide excision of posterior peritoneum no attempt is made to close the defect.

Since the advent of modern surgery, operations devised to save the rectal sphincter when carcinoma of the rectosigmoid is present have been attempted. In the past, however, the great drawback to such operations was the inadequacy of the procedure. Radical extirpation of sufficient node-bearing mesentery was not the order of the day. Likewise anal function could only occasionally be assured, and rectal strictures were common. More recently, however, most of the above objections have been overcome, and in a selected group of cancer patients we can successfully remove adequate nodal-bearing mesentery and bowel and preserve the anal sphincters. It must be stressed that a functioning anal sphincter is of secondary importance as compared to a life saving procedure which necessitates radical removal of bowel, mesentery and nodes.

In 1948, Swenson of Boston devised an operation for Hirschsprung's Disease, whereby a low rectal anastamosis is accomplished with preservation of the anal sphincter. Because of Swenson's successful sphincter saving operation, a similar procedure has been devised in carcinoma lying at or just above the reflection of the pelvic peritoneum. Occasionally a small lesion lying just below this area may be suitable for this operation. Contraindications are the presence of lateral extension of the growth or evidence of retrograde metastasis where wide excision of the medial portions of the levators, rectum and anus must be accomplished. Likewise, this operation must never replace the wide abdominoperineal resection in lesions of the upper or lower rectum. Under no circumstance should we permit ourselves to sacrifice wide excision to satisfy a patient's desire to have bowel movements through the normal channel. Whenever there is any evidence of extension of the carcinoma, the abdominoperineal resection offers the best prognosis.

The operation entails removal of the greater portion of the left colon, together with its node bearing mesentery. The inferior mesenteric artery is ligated at its source. The remaining distal bowel will

be adequately supplied by the mid-colic artery through its marginal arteries. The splenic flexture and the distal portion of the transverse colon is freed to permit enough length to make the anastamosis with the rectal cuff without tension.

We have made mention of the advisability of radical removal of nodal-bearing mesentery in carcinoma of the left colon. Can we do anything for the individual who has an invasive carcinoma of the rectum—the unfortunate victim who ordinarily is explored and declared inoperable? Is it possible to remove all of the involved pelvic organs including the bladder with any hope of success? There can be no question that in attempting such a procedure the morbidity and mortality will be high, but occasionally a happy result will occur in an otherwise doomed cancer victim. Involvement of loops of small bowel offers little difficulty and should be resected enmasse with the colon, and an end to end anastamosis performed.

Pelvic eviscerectomy or pelvic exenteration entails the removal of all diseased organs, lymphatics and veins. If the tumor has encroached on the uterus or adnexa, total pan-hysterectomy is not an uncommon procedure. Involvement of the vagina demands an additional vaginectomy. Should the tumor invade a portion of the bladder, it is frequently possible to resect a portion of the organ and close the defect. If, however, invasion of the bladder is extensive, the bladder itself can be removed with transplantation of the ureters either into the bowel or to the skin. Experience has shown that transplanting the ureters to the skin is the less dangerous procedure. Should portions of one or both ureters be involved, it is possible to resect the involved portion with either an end to end anastamosis, reimplantation of the ureters into the bladder, or to perform a ureterostomy. Should the greater part of the ureter be involved, with a normal kidney on the opposite side, it may be wise to ligate and divide the ureter as close to the kidney as possible. The kidney generally will atrophy.

In the ordinary Miles abdominoperineal procedure the seminal vesicles and prostate are preserved. If, however, these structures are involved they likewise can be removed with the rectal carcinoma. The prostate can be carefully dissected from the urethra and base of the bladder and removed with the seminal vesicles and carcinomatous bowel.

All of these formidable procedures demand wide dissection not only abdominally, where the lymph nodes at the origin of the inferior mesenteric artery are removed, but the preaortic nodes must be excised. The lateral pelvic area must be freed of the levators and lymphatic tissue. The perineal excision demands wide dissection of the levators, the rectum, ischiorectal fat, sphincters and adjacent tissues.

Summary

In any attempt to cure a carcinoma of the left colon and rectum it becomes imperative to remove all the involved nodes, the most important of which are those lying in the vicinity of the orgin of the infero mesenteric artery, (too often overlooked). Ligate this vessel with all of its nodes, and strip the aorta and vena cava of all nodes and areolar tissue; extirpate all nodes in the region of the bifurcation of the aorta, as well as nodes in the vicinity of the hypogastric and iliac vessels; excise all tissue lying in the pelvis. Without such an approach our survival rates will remain low.

25 East Washington Street

Multiple Primary Malignancies of the Intestinal Tract

WILLIAM P. SMITH, M.D., F.A.C.S., F.I.A.P.*
Columbus, Ohio

Primary multiple malignancies of the intestinal tract are rather rare, yet found frequently enough to deserve careful consideration. This fact has been recognized for many years. Their occurrence is now a well established entity and no longer just a curious pathological finding. In fact, Billroth[1] published his postulates in 1869, which must be fulfilled before multiple carcinoma can be identified as separate and independent lesions. He reported the first case of multiple primary carcinoma that same year. His postulates are as follows:

First—The growths must differ histologically in a manner so pronounced as to exclude the possibility that they are of the same origin but in different stages of development.

Second—Each growth must spring from its parent epithelium.

Third—Each growth must be held responsible for its separate group of metastases.

Later, Mercanton[2] added other qualifications. "If after removal of two carcinomas, the patient remains free from the disease, the two growths must have been independent, else there should have been other metastasis."

According to Thompson[3] this postulate, formulated by Billroth, is too strict and must apply to growths arising in different organs, only. It is definitely known that in multiple polypi of the intestine, primary neoplastic lesions may originate in different areas of the gut, at the same time or at different times.

Mutation may occur in any of the polypi present in the intestinal tract. Independent tumors originating in different parts of the intestinal tract may be different histologically or there may be a histologic similarity. It has been shown, by Virchow, that carcinoma and sarcoma or the mixed type of carcinoma sarcomatodes does occur, probably due to some abnormal stimulu acting on the epithelial and mesothelial elements. Erlich and Apolant[4] produced typical sarcoma by repeated innoculation of mice with typical adenocarcinoma. It has been demonstrated, where a transplanted carcinoma is removed early and transplanted, then transplanted to another animal of the same species, a carcinoma results. If the transplanted carcinoma is allowed to grow until it transmutes into a sarcoma, then all further injections produce pure sarcomata. According to statistics, the occurrences of neoplasms is more common in unrelated systems.

Through the official reports from the United States Public Health Service and the American Cancer Society, it has been

* Director of Surgery, White Cross Hospital, Columbus, Ohio.

shown that there is a widespread interest in the apparent increase of cancer in the human race. From eighth place in 1900, as to the cause of death by cancer, it has now reached second place as the mortality factor in all diseases. Statistics tell us that more than 500,000 persons, in the United States, are stricken, yearly, by neoplastic diseases.

The Metropolitan Life Insurance Company states that the rise in frequency of cancer in our population is due to the decline of the death rate in other diseases, rather than any increase in the cancer death rate. In other words, patients now live longer, thereby making it possible for them to come into the cancer age group. Perhaps more than 35,000 deaths occur annually from malignancy of the lower bowel. In the female, cancer of the cervix ranks first, the breast second, cancer of the stomach, perhaps third, while cancers of the large bowel are fourth. About 10% to 12% of all malignant tumors originate in the sigmoid, rectum and anus. The incidence of cancer of the bowel is greater in the white race than in the colored race. It is also greater in males than in females. The highest incidence is usually encountered in the age group from 50 to 60 years. There are reports of cancer of the intestinal tract in teen agers and in nonogenarians. Phifer[5] collected 22 cases under 15 years of age, the youngest, one year of age.

From the etiological standpoint, we are still groping in the nebular hypothesis of the past. In the Conheim Inclusion Theory tumors are supposed to develop from misplaced cells, during embryonic life. Waldeyer and Thiersch based their theory on the imbalance of tissue equilibrium while Kullberg[6] advanced the theory of ischemic etiology. We have the tension theory of Ribbert[7] in which he suggests that cells cease to grow because the power of organization and environment is limited.

The genetic theory of Boveri[8] states that accidental transmission of chromosomes in cells of the somatic tissue results in the formation of tumors.

The theory of Lockhart-Mummery[9] is interesting. It deals with gene mutation of somatic cells in which the rate of growth of somatic cells must be controlled by certain genes contained in the nucleus of the cell. If these genes mutate in such a way that the normal rate of growth is increased and mutasis of the cells occur more frequently than is normal for that particular tissue, then a new growth develops. This means that cancer would only occur in persons who have inherited a genetic susceptibility to mutation of certain tissue cells.

We must not forget the hormone theory and the theory of heredity. In 1942, Braund and Binkley[10] in a study of 108 cancer patients found that 31 or 28.9 percent, gave a cancer history in 41 relatives; 10 of these were cancer of the rectum. One, a father with rectal cancer, nine members of the family had other types; three mothers had cancers of the rectum; four had other types. Four brothers had cancer of the rectum; six had cancer in other locations. One each of the paternal uncles, aunts, granduncles and grandfathers had malignant involvement in areas other than the rectum. Broca[11] reported 26 patients, in one family, 16 of whom died of cancer. Warthin[12] reported on 48 descendents of a cancerous grandfather with 17 deaths in this family group, due to carcinoma. According to Maud Slye[13] there are two factors necessary for the production of cancer; susceptibility and irritation. This fits in partially with the Virchow irritation theory.

Crohn[14] stated that no single factor is more momentous than the presence of adenomatosis polyps, single or multiple, or a well developed generalized polyposis, particularly of the congenital type. These tumors readily mutate into malignant growths in the colon.

Miller[15] believes that leukoplakia is an etiological factor and sometimes precedes squamous-cell carcinoma of the anal canal

The specimen consists of two portions of sigmoid, the larger portion measuring 14 cms. in length. It is dilated to a diameter of 5 cms. above an area of carcinoma which tumor measures 7 cms. in length and has produced a funnel shaped constriction measuring 1 cm. in diameter at its greatest point of constriction and through this portion only a very narrow channel remains. This constriction is produced by an infiltrating granular type of carcinoma which infiltrates into the adjacent adipose tissue and grossly replaces all layers of the bowel. Approximately 4 cms. of carcinomatous intestine extend below this point of constriction. There are no apparent lymph nodes. A separate portion of large bowel measures 6 cms. in length and 4 cms. in diameter and apparently contains no tumor tissues.

Microscopic sections of this tumor show an adenocarcinoma replacing the mucosa and infiltrating throughout all layers of the wall to appear in the central constricted area as carcinomatous infiltrations of the fat about the bowel. The carcinoma, however, shows a partial attempt at differentiation, and the invading tumor is only moderately anaplastic.

Diagnosis; adenocarcinoma of the sigmoid, grade 3.

and rectum. In many cancer cases there is a luetic history. It is doubtful that hemorrhoids predispose to cancer; however, the Mayo Clinic[16] reported that one in every one hundred cases of hemorrhoids showed histologic evidence of cancer. We must always remember that radium or X-ray irradiation may be a carcinogenic agent.

Incidence The incidence of multiple primary carcinoma of the intestinal tract is variable, according to different authors.

The specimen consists of the resected rectum and anus and a separate portion of bone. The resected rectum and anus measures 16 cms. in length and 5 cms. in widest diameter. The perirectal tissue is irregular, fibrous and on opening the bowel the anus is covered by a smooth pale mucosa while the rectal mucosa is smooth and pale with fairly large rugi and 9 cms. above the anorectal junction there is an annular lesion of the mucosa which is disrupted. This annular lesion measures approximately 3 cms. in length, is sharply demarkated from the surrounding pale mucosa, is discolored, granular and cut section shows this lesion does not penetrate through the muscularis. There are no palpable lymph nodes.

Microscopical sections of the tumor area show it to be an adenocarcinoma, which is evident by fairly undifferentiated glands which are lined by anaplastic cells, and separating these glands is a chronically infected fibrous tissue. This tumor tissue has ulcerated the mucosa and penetrated through all the layers of the bowel out into the surrounding serosal layer. The remaining bowel is normal and the anus is also normal.

Diagnosis: adenocarcinoma of the rectum, grade 2.

It ranges from .6 of one percent to 6 percent in autopsies of patients with malignancies. We must bear in mind, therefore, the frequency of multiple lesions. This should stimulate careful examination in all neoplastic diseases. We must always make a thorough search for other primary lesions and we should not confuse a second primary tumor with metastatic implantations. An error in our evaluation of the findings might influence the surgical procedure and the prognosis. We are liable to make the mistake of calling a second primary lesion an extension or metastatic involvement. This is especially true if the lesions are synchronous and discovered at the same time. A mistake is less likely to occur if the lesions are asynchronous. The majority of multiple lesions of the intestinal tract, thus far reported, show that the colon and rectum are the most frequent areas involved. There are many cases reported in which the large intestine is the seat of cancer in various parts. There are a few cases in which the large bowel and the oesophagus show separate primary lesions. In only one case is there a report of primary carcinoma involving the large bowel, rectum, and the small intestine, and this was the jejunum. The case that I am reporting was a patient who was operated upon for a primary adenoma-carcinoma of the ileum. It is impossible for me to state whether these tumors were synchronous or asynchronous.

There is a great deal of confusing evidence presented concerning the theory of Lockhart-Mummery as to whether one malignant growth inhibits the development of another primary tumor in the same individual. It is difficult to accept such a theory because we find multiple primary lesions in the same patient. If the theory were true, a person should develop an immunity for further growths as soon as one lesion develops. It has even been proposed by one author that skin tumors should be artificially induced because these can be readily counteracted and cured, and that the incidence of the more fatal types of malignancy will be reduced.

59—*Primary Multiple Malignancies*—Bacon[17]

15—Rectum and rectum.
25—Rectum and sigmoid.
1—Sigmoid and stomach.
1—Sigmoid and lip.
1—Rectum and stomach.
1—Sigmoid and oesophagus.

The specimen consists of a resected portion of small bowel 8 cm. in length and 3 cm. in diameter. The serosal surface is smooth and glistening, except for a thin 4 mm. band of constricting carcinomatous tissue which appears to be in an area of previous anastomosis. Upon opening the bowel there is a ! cm. annular carcinoma which constricts the lumen of the bowel to 8 mm. in diameter. The remainder of the bowel mucosa is normal. Upon cut section the carcinoma has invaded all the layers of the bowel wall.

Microscopic sections of the resected portion of bowel show the carcinomatous tissue to be formed of poorly differentiated glands, consisting of anaplastic epithelial cells. These glands are separated by a scirrhous type of fibrous tissue.

Diagnosis: primary adenocarcinoma of the small bowel, grade 3.

1—Rectum and nose.
2—Rectum and tongue.
1—Sigmoid and breast.
1—Rectum and cervix.
2—Rectum and breast.
1—Rectum and descending colon.
1—Rectum and uterus.
1—Rectum and ovary.
2—Rectum and bladder.
1—Rectum and gall bladder.
1—Sigmoid and uterus.
1—Sigmoid and Cecum.

Treatment In all cases of carcinoma of the intestinal tract, as in malignancies elsewhere, radical exeresis is the sensible procedure. This means that all possible areas involved, including the lymphatics, must be extirpated if the condition is operable or removable.

The atomic fission products or radioactive elements to date, have offered little therapeutic assistance in malignancies of the intestinal tract, and the irradiation therapy applicable to these lesions is rather limited and frequently of little avail.

The most important procedure in dealing with neoplastic diseases is an early diagnosis and removal of the lesion, when it is still confined to a more or less localized area.

The operative procedures used in intestinal surgery are numerous. Techniques vary according to the whims of the authors. You should have a good method or technique in doing resections and anastamoses and it makes little difference whether the procedure was developed by a Mayo, Moynihan, or some obscure surgeon from Timbucktoo. You need not be an ape or an imitator. You will find, after years of experience, that you must adjust your techniques to the individual cases encountered.

The cuts you observe in the text books are clear, distinct, quiet, bloodless and beautiful. You can't manipulate them, they don't bleed and they are not human. They may assist you to a degree, but you have to experience the surgical procedure and their complications with the actual structures on a living subject, who is a human being, like you and I. Bear in mind, first of all, that you are trying to do the best you can for your patient; to keep him alive and to improve his health, and if possible effect a cure. Don't do something radical just because some other surgeon exceeds you in his accomplishments. Be satisfied with the best and safest procedure that you alone are competent to perform.

Case Report Mr. Mc.—Case No. 450,522, age 54, was referred by Dr. Max Livingston, to my service at White Cross Hospital, January 1, 1948. The patient complained of cramp-like pains through the abdomen, most marked in the right lower quadrant. He stated that he had had no bowel movement for three days. His bowels normally moved two times each day. However, for the last month, he noted that there was a change in his bowel habits. He had frequent stools, four to five per day, movement small, with diarrhoea. The patient had nausea and vomiting for the past 24 hours; blood had been present in the stools at different times over a period of several years.

The past history shows that Mr. Mc. was in good health all his life with the exception of an attack of typhoid fever at the age of twelve years and an appendectomy in 1925.

Physical examination revealed an obese male with nausea and vomiting, marked abdominal distention. He was somewhat dehydrated and restless. His pulse was variable, the rate fluctuating from 72 to 110. No heart lesion was noted. The blood pressure was 158 systolic and 86 diastolic. The temperature was 99° on admission and was 100.4° several hours later. The blood count showed; hemoglobin 15.5 grs., erythrocytes, five million, leucocytes—8200, neutrophiles 81, eosinophiles—5, lymphocytes—12, monocytes—1, and coagulation time—four and one-half minutes. This

blood count indicates dehydration. The urinalysis is normal.

The patient was taken to the X-ray room and a Scout film was taken. This revealed marked distention of the colon and small intestines. A barium enema showed obstruction at the recto-sigmoid. No lesion could be palpated by rectal examination. Proctoscopic examination was not made.

On January 2, 1948, we made a diagnosis of intestinal obstruction, due to a neoplasm in the recto-sigmoid region. On this same day, the patient had a number of liquid stools and we delayed operation. His distention lessened and vomiting ceased. We gave numerous infusions of glucose in preparation for surgery.

On February 9, 1948, the patient was given pentothal and cyclopropane anesthesia and the abdomen was opened in the lower mid-line. The lesion was easily located in the lower sigmoid. To relieve the intestinal distention, we punctured the ileum and removed considerable gas and fluid. We were not satisfied with this decompression, so we performed a cecostomy so that we could deflate the intestinal tract.

On February 21, 1948, we again took the patient to surgery. An anterior resection of the malignant lesion in the lower sigmoid was performed and a permanent colostomy established. Because of the obesity of the patient and his weakened condition, we left the rectal segment intact. Later the patient developed a bloody discharge from the rectal segment and on March 4, 1949, we performed a combined removal of the remaining lower bowel. The diagnosis, pathologic, revealed adeno-carcinoma Grade 3 of the lower sigmoid, in the segment removed at the first operation, while the segment removed on March 4, 1949, was classified as a Grade 2 adenoma-carcinoma.

The patient recovered from both operations and was apparently in good health until August 30, 1949, when he was again admitted to my service at the hospital. He was again suffering from intestinal obstruction. Our diagnosis in that instance, was obstruction, due to metastasis or post operative adhesions. After preliminary preoperative preparation, he was taken to the operating room where an abdominal exploratory incision was made. Upon opening the abdomen, we discovered a single intrinsic neoplasm of the upper ileum, which completely occluded the lumen of the gut. A resection, with end to end anastamosis was performed. No enlarged nodes were palpable at either of the operations and no metastatic nodules were found.

The microscopic diagnosis of the growth found during the last operation proves it to be a primary adeno-carcinoma of the ileum, intrinsic in nature and not a metastatic spread.

The patient made a splendid recovery and is living a normal active life at this date, June 7, 1952. His colostomy is irrigated once daily and is easily controlled with a small colostomy pad.

Dr. Roswell Fidler, chief pathologist of White Cross Hospital, checked the pathological records through 1929 to 1952, and the case I have reported is the only one found in his department during these many years. This is also the only case with primary malignancy of the sigmoid and the ileum, that I found in reviewing the literature. I found one report of involvement of the jejunum and the large bowel.

9 Buttles Avenue

Malignant Disease

The Clinical Consideration and Treatment of Malignant Disease of the Colon and Rectum

M. TISCHER HOERNER, M.D., Ph.D. (in surgery)
Dayton, Ohio

Malignant lesions of the colon and rectum are notorious for the insidious manner in which they develop. Until more reliable methods are suggested, careful consideration must be given to the milder complaints associated with disturbances of the intestine. The results obtained by present therapeutic methods in cases of advanced neoplastic disease of the colon are not as satisfactory as one would desire. Consequently, too much emphasis cannot be placed on the importance of a diagnosis in the early stages of the disease. The early symptoms of malignant growths of the large intestine often assume bizarre patterns and may simulate various other intra-abdominal lesions. For these reasons it is essential to point out some of the characteristics of these neoplasms so that the symptoms which they produce can be better evaluated.

Pathology While considering the characteristics of malignant disease of the large intestine, it is best to divide this organ into right and left halves. The right half corresponds to that portion proximal to the middle of the transverse colon and develops from the midgut. The left half is composed of the remainder of the large intestine distal to the middle of the transverse colon and develops with the rectum from the hindgut.

Neoplasms in the right half of the colon usually present a different picture from those in the left. Carcinoma of the right half of the colon often is composed of a large, polypoid, fungating lesion which may grow to considerable proportions before producing symptoms. Right-sided neoplasms usually do not produce obstruction because: (1) they are not likely to encircle the colon; (2) the bowel content of this portion of the intestine is liquid; and (3) there is a tendency for the lesions to perforate and form abscesses. However, if the tumor is in a dependent or mobile segment of the colon, it is possible that volvulus of the bowel may be produced. In addition, if the lesion protrudes into the lumen of the colon, an intussusception may result. Eventually, ulceration and infection occur in all types of right-sided lesions. If perforation and extension of the growth through the wall develop, they are apt to occur at fixed points of the bowel.

Malignant growths on the left side of the colon are prone to produce various degrees of obstruction in the colon relatively early in the course of the disease. Several factors are involved in the process: (1) the diameter of the colon is narrower on the left side; (2) the fecal content of the bowel tends to be formed; and (3) many of the neoplasms tend to circle the colon in a signet-ring manner. Once obstruction is produced, the large intestine proximal

to the lesion hypertrophies and dilates, sometimes simulating the colon in Hirschprung's disease. The wall of the obstructed colon will become thin and may develop a moth-eaten appearance, due to the presence of numerous small ulcers. Such lesions increase the permeability of the wall of the colon, thereby permitting bacteria to invade contiguous tissues.

Malignant tumors of the large intestine are usually one of three types of lesions: (1) adeno-carcinoma is probably the most common; (2) scirrhous carcinoma is the type that is seen so frequently in left-sided colon lesions and is responsible for the development of obstructive phenomona; (3) mucoid adeno-carcinoma or mucoid carcinoma constitutes about 5 per cent of all neoplasms of the colon and rectum. One can expect greater longevity but greater eventual mortality when dealing with lesions of the latter type. The mucoid material pushes through the meshes of the tumor and appears as glistening grayish white nodules on the surface of the tumor and surrounding tissues. There is less tendency for this tumor to become encapsulated. The neoplasm spreads chiefly by direct extension, for the involvement of the lymphatic structures usually is not great. There seems to be a tendency in these lesions for the amount of mucus present to be inversely proportional to the grade of the malignancy. However, if the regional lymphnodes are involved, the prognosis is not good, regardless of the grade of the neoplasm or the amount of mucus present. Malignant lesions of the left colon first metastasize to the regional lymphatics then to the pelvic and aortic chain of lymphnodes and finally reach the liver and other distant organs.

Most neoplasms of the rectum are adenocarcinomas. These lesions usually develop in the mucosa and submucosa without attachment to the muscularis. However, the surface of the tumor soon ulcerates, the edges become indurated, and a crater is formed. When extension occurs into the muscularis, the malignant cells follow the course of the lymphatics and encircle the bowel. Lymphnodes may become involved at any time after the growth reaches the submucosa but usually occurs much later. Approximately one year is required for the lumen of the recto-sigmoid to become completely encircled. However, neoplasms in the ampulla of the rectum are usually of the medullary type, which, as the disease progresses, begins to slough. Another type of neoplasm originating in the anal epidermis, is the epithelioma. This lesion, although rare, is highly malignant and metastasizes early, usually to the inguinal lymphnodes.

There are three routes by which malignant tumors of the rectum can metastasize by means of the lymphatic structures: (1) downward into the wall of the bowel below the growth and then into the rectal sphincter and ischio-rectal fossa; (2) laterally into the levator muscles and pelvic organs; and (3) upward into the bowel above the growth, finally involving the recto-peritoneal lymphnodes, pelvic peritoneum and, mesocolon.

The grading of malignant tumors has been of great assistance in the treatment of carcinoma of the colon and rectum. It is as accurate a means of forecasting the prognosis as has been developed up to this time. In addition, the cellular structure is one of the chief factors in determining the nature and extent of the surgical procedure and the benefit to be derived from irradiation.

Experience teaches that malignancy in large, polypoid growths is usually of low grade, and that lesions which appear as punched-out ulcers are likely to possess highly malignant characteristics. Thus, the curability of the disease cannot be accurately calculated from the size of the lesion alone.

Signs and Symptoms

Cecum and Ascending Colon

Probably because of the nature of the

nerve supply of the large intestine and by virtue of its size, as to width of lumen, as well as territory in the abdomen covered, pain when present rarely is at the site of the lesion. This is especially true of the so-called "silent" right colon, for symptoms frequently are not noted until considerable alteration in structure or function has occurred. Consequently, lesions in this portion of the colon are more difficult to detect than those more distally situated.

The pain associated with a lesion in the right colon is frequently referred to the epigastrium. This has lead to the saying that epigastric distress is more commonly due to disease of the colon than to disease of the stomach. The pain or distress may be cramp-like or aching in character. It is not the pain described in peptic ulcer, although it may simulate it. The mild dyspepsia that is sometimes seen in association with recurrent appendicitis is also sometimes observed in these cases. However, obstructive phenomena are rarely noted.

Not infrequently the first sign of disease of the right colon will be the accidental discovery of a mass in this area. Due to the size of the lumen of the bowel, the tumor may reach considerable proportions before producing symptoms. It is possible that the mass may afford an increased surface of absorption and thereby account for the loss in weight and strength that some of these patients experience before any other evidence of disease is detected.

Anemia is another of the cardinal signs of malignant disease of the right colon. It may vary from a mild secondary anemia to an anemia so profound that the patient is unable to work. There often has been no evidence of loss of blood and no other symptom of debility. It is difficult to explain why the anemia occurs, but it is possible that it is due to some perverted function of the mucous membrane with increased absorption of toxins. However, in any differential diagnosis of secondary anemia the possibility of a lesion of the right colon should be kept in mind.

Alternating diarrhea and constipation is sometimes seen in cases of malignant disease of the right colon. However, when present the diarrhea is rarely severe. The stools may be loose, watery, and contain mucus, but gross blood is an uncommon finding.

Transverse Colon Pain is much more common when the site of the malignant growth is in the transverse colon. The distress is often mild, intermittent, related to meals, and relieved by the passage of gas or a stool. There is usually no definite localization of the pain, but often it is most intense in the region of the umbilicus. At times the pain may be more severe, suggesting partial bowel obstruction, but without excessive vomiting or changes in the constituents of the blood. Acute bowel obstruction necessitating emergency surgical intervention is unusual.

Increasing constipation, gross blood in the stools, indigestion, and loss of strength and weight, sometimes are the first complaints that direct attention to malignant disease of the transverse colon. However, a few patients may not seek consultation until a palpable mass has been detected accidentally.

In short, most of the signs and symptoms that are seen in association with neoplasms of the right or left colon may accompany similar lesions in the transverse colon, except for a few obvious features, such as the location of the mass, which is characteristic of the middle colon itself. Consequently, in passing from one side of the colon to the other, one sees a definite change in the signs and symptoms presented by a neoplasm in various portions of the large intestine.

Descending Colon and Sigmoid. As has been suggested, when malignant neoplasms involve the left colon, they usually present the characteristic picture that one ordinarily associates with carcinoma of the large intestine. In contradistinction to malignant growths in the right colon,

those on the left often afford more evidence of their location. It is not difficult to understand the reason for the change in the presenting symptoms if one remembers that: (1) the diameter of the colon is narrower in this portion of the intestine; (2) the fecal content tends to be more formed; and (3) the neoplasms at this site are prone to encircle the bowel. As a result of these phenomena, obstruction is the outstanding characteristic of lesions in this side of the colon. Irregularity of the stool may develop early in the course of the disease. As the growth becomes larger, there may be alternating constipation with abdominal cramping and urgency, and diarrhea with blood in the stool. The symptoms are usually intermittent, relief being obtained by enemas and purging. At times, months intervene before the disease returns. However, the obstruction is not uncommonly complete during the first attack and it may be the initial indication that there is something wrong in the colon, A palpable mass may occur early due both to the size of the tumor and to the accumulation of feces behind the lesion. Adenocarcinoma or colloid carcinoma may produce a somewhat similar picture, except that bleeding because of ulceration, may be more marked.

It is interesting to note the length of time that a patient can tolerate obstruction of the colon if it is induced slowly. Although some neoplasms produce a sudden obstruction, particularly the annular type of scirrhous carcinoma, others tend to obstruct the colon gradually over a period of weeks or even months. As a result, when complete obstruction does take place, it may be tolerated for several weeks without any untoward symptoms other than progressive abdominal distention. It is difficult to detect peristaltic movements when the large intestine is obstructed unless the individual is thin. When it can be seen, it is quite characteristic and differs from that in the small intestine in that the motility is sluggish and prolonged.

Recto-Sigmoid and Rectum. Malignant growths of the recto-sigmoid and rectum are probably easier to diagnose than neoplasms anywhere else in the large intestinal, for the symptoms, while not characteristic, are quite suggestive and, all that is needed to confirm the diagnosis is a careful digital examination, or at most, a proctoscopic examination. Although pain is not always present and often is mild, it is usually located in the left side of the abdomen or in the pelvis. There is frequently some change in the bowel habits, and rectal bleeding is a common complaint. Lesions at the recto-sigmoid are apt to produce obstructive features early but those in the ampulla of the rectum are likely to be silent for a longer period because the lumen of the bowel is wider at this point. Nevertheless, tumors at the latter site give some warning of their presence by the red blood which is so often seen in the stool. Rectal tenesmus also often accompanies growths which are situated low in the rectum and in those in which the anal sphincter is involved.

Diagnosis When a preliminary diagnosis of malignancy of the large intestine has been made, it is essential to eliminate all other pathological processes which might be confused with such a lesion. Diverticulitis with tumefaction may be confusing at times, particularly if one is dealing with a lesion in the left side of the colon. However, the acute onset, the characterstic spasm of the colon, the absence of blood in the stool, and the discovery of other diverticuli in the large intestine are of considerable aid in making a differentiation.

The so-called benign polyps of the colon offer a difficult problem. These tumors may be single or multiple. However, due to the frequency with which these neoplasms undergo malignant transformation, it is probably better at the present time to consider all lesions of this type as malignant or potential sources of malignancy

and to advise their removal as soon as discovered.

It is never easy to differentiate hyperplastic tuberculosis from malignant growths of the right colon. Some aid may be derived from the knowledge that the former usually occurs in younger individuals and is not associated with profound anemia. The discovery of some other focus of tuberculosis is also of considerable importance. Nevertheless, surgical intervention may be necessary to establish the diagnosis.

The diagnosis of amoebic dysentery can be established by the finding of entamoeba histolytica in the stool, but regional or localized chronic ulcerative colitis may offer more difficulty. Although chronic ulcerative colitis usually begins in the rectum, it may attack any part or all of the large intestine. The roentgen ray is the only reliable diagnostic aid.

Fecal impactions, inflammatory strictures, and peri-rectal lesions must also be ruled out.

Treatment In the treatment of malignant growths of the large intestine and rectum surgery constitutes the method of choice in the majority of cases. However, in order to obtain the best results it is necessary to pay careful attention to the pre-operative preparation of the patient.

As many of these individuals are suffering from various degrees of obstruction in the colon, decompression of the intestine should receive first consideration. Hot abdominal stupes should be applied and if the obstruction is complete, warm saline rectal irrigations in the knee-chest position may be tried. No food is given by mouth and fluids are supplied intravenously or subcutaneously. If the patient's condition is critical and the passage of flatus or intestinal movements are not re-established within a comparatively short time, emergency surgical decompression of the intestine should be instituted.

However, when the obstruction is relieved, a low residue diet consisting principally of carbohydrates, may be administered. A mild laxative may also be given at this time to clean out the intestine from above. Irrigation of the colon approximately every twelve hours should be continued for several days, but the day before the operation several small doses of paregoric should be given in order to place the colon at rest. Aspiration of all the material that remains in the colon should also be carried out at this time.

In recent years, the use of drugs, such as sulfasuxidine and antibiotic preparations have contributed to the safety of operations on the colon. These drugs are given for several days prior to operation so as to minimize the number of pathogenic bacteria in the intestinal tract.

The details of the technic of resection of the bowel have varied from time to time and with different surgeons, but the essential feature in the ultimate outcome of treatment is removal of the segment of the intestine containing the lesion. Even though the situation of the lesions may be identical, different procedures may be required in individual cases, and great care must be exercised in the selection of the operation.

If the lesion is in the right part of the colon, it is usually best to perform ileocolostomy, anastomosing the terminal portion of the ileum to the transverse colon, and then resect the right colon at the same operation or subsequently. The general condition of most of the patients will warrant performing the operation in one stage.

Operations on the left part of the colon differ from those on the right colon for three reasons: (1) the mesentery of the left colon is more mobile; (2) the content of the left colon is more septic; and (3) the lesions in the left colon are prone to produce varying degrees of obstruction. Therefore, resection in multiple stages, without incision of the bowel at the first stage, is required at times. The situation is best dealt with by performing preliminary

surgical drainage, then resection and anastomosis or obstructive resection.

However, in recent years careful preservation of the marginal vessels of the colon at the site of resection and the discovery that antibiotics will minimize the degree of infection in the area of the anastomosis, have made it possible to perform resection with primary end to end re-establishment of the continuity of the bowel in most patients suffering from left-sided malignant colon lesions. In some instances the same procedure can be employed when the malignant growth is situated relatively low in the rectum. Although gratifying results have been obtained by such operations in selected patients, combined abdomino-perineal resection, usually in one stage. is indicated in the treatment of the majority of carcinomas of the rectum.

Following operation, fluids should not be administered by mouth until the patient passes flatus. The proper fluid balance is maintained by intravenous or subcutaneous injection. The use of chemotherapy and the administration of antibiotics have done much to eliminate many of the serious post-operative complications due to contamination of the peritoneal cavity by the septic contents of the colon.

The treatment of malignant growths by irradiation alone has not been as successful as one would desire. Radium appears to be less successful in the treatment of adeno-carcinoma of the rectum than in the treatment of similar lesions elsewhere in the body. However, in selected cases irradiation is a valuable adjunct to surgery. Furthermore, in inoperable cases, patients have obtained considerable palliative relief by radium or x-ray therapy.

Comment It should be pointed out that cases have been reported in which there were two or more distinct, primary malignant lesions of the colon. It is possible that such growths originate from single, widely-separated, adenomatous polyps, but other factors, as yet unknown, also may be of importance in this regard. Nevertheless, a careful examination for more than one lesion should always be conducted.

Not infrequently, in performing an exploratory operation, one encounters lymph-nodes that appear to be abnormal. Such lymphatic structures or even a small distant nodular lesion in the liver, may be of an inflammatory nature, and consequently, should not constitute contra-indications for removal of the primary maligant growth.

Not only the duration of the symptoms but the age of the patient is an important factor in determining the ultimate success in the treatment of neoplasms of the large intestine. It has been found that among young persons the malignant process was usually of a more active type, and for this reason fewer survive for long periods of time. This observation is cited so as to emphasize the significance of the character of the growth in relation to the outcome of treatment.

Summary

The earliest manifestations of malignant disease of the colon and rectum have been considered. Due to the difference in the diameter of the colon, the character of the fecal content, and the nature of the neoplasms, the symptoms produced by lesions in the right half of the colon differ from those produced by growths in the left half of the large intestine.

The clues suggestive of malignant disease of the right colon are: vague dyspepsia, pain, anemia, and a palpable mass. When similar lesions are present in the left colon, obstructive features, either sudden or gradual in onset, usually dominate the picture.

Roentgen ray examination is of great aid in making a positive diagnosis. Proctoscopic and digital examinations confirm the presence of rectal lesions.

Inasmuch as malignant tumors start as a single focus, radical surgery constitutes the best method of treatment in the majority of these cases. Special preoperative and post-operative care have materially decreased the immediate operative mortality.

Fidelity Medical Building

Diagnosis

History Although a complete history is essential in all cases, diagnosis is usually easily made upon examination alone. The history should include questions relating to bleeding, pain, protrusion, discharge, pruritus, and bowel habit.

The two most common complaints are bleeding and pain. The most common source of moderate rectal bleeding will be hemorrhoids. In children benign polyp is the most frequent location.

In every case, benign or malignant tumors must be ruled out. If the blood is mixed with pus or mucus an ulcerative process may be indicated.

Bright red blood usually originates in the lower rectum or anus. Dark blood may originate in the sigmoid or higher. Tarry stools indicate bleeding in the upper intestinal tract.

The major sources of acute pain are acute anal ulcer, thrombosis and foreign body.

A protrusion may be a polyp, prolapsing internal hemorrhoids, rectal prolapse or procidentia, or prolapse of a malignant tumor.

Mucus discharge may indicate colon hypersecretion, as in mucous colitis, or a proctosigmoiditis. The purulent drainage

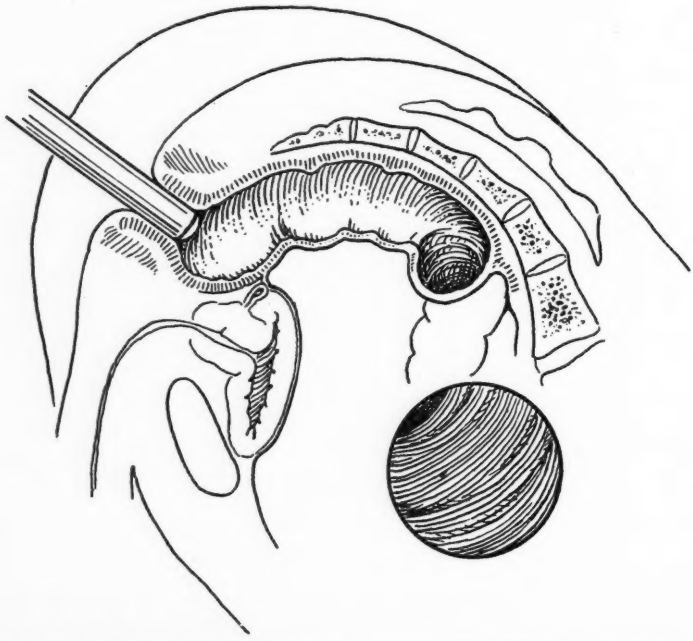


Fig. 1. Sigmoidoscope with obturator in place is directed toward the umbilicus. The patient is in inverted or in the knee-shoulder position.

of a fistula is characteristic.

Pruritus requires a careful search for local and general pathology. Pinworms frequently cause pruritus, both in adults and children.

A change in bowel habit need not signify malignancy. However, every such symptom should be carefully investigated.

Inspection and Digital Examination Inspect the sacrococcygeal area first, for pilonidal disease. Now inspect the perianal and anal areas. Always ask the patient to bear down as if he were moving his bowels, and look for mucosal prolapse or complete procidentia.

The diagnosis of anal ulcer can be made simply by spreading the anal verge and inspecting with a strong light.

Palpation will determine abscess, thrombosis, or the tract of a fistula.

The digital rectal palpation should include examination of the coccyx as well as the interior of the rectum, and the prostate in the male. Have the patient rise to his knees, or to a sitting position, while maintaining the finger in the rectum. This will sometimes bring down a mass, within reach of the finger.

Instrumentation The position of the patient may be knee-chest, inverted or left lateral. Our preference is for the inverted position on a table designed for that purpose.

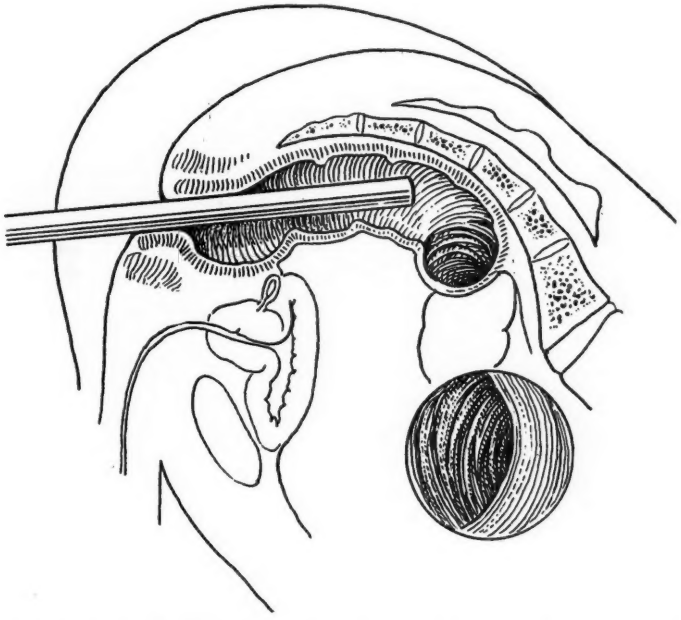


Fig. 2. Obturator has been removed and the instrument is advanced along the sacral curvature. Insert shows view of the rectosigmoid junction.

If there is a painful anal lesion, instrumentation may be preceded by the introduction of a pledget of cotton soaked in pontocaine solution. If this solution is allowed to remain in contact with the painful anal lesion for ten to twenty minutes, instrumentation may follow with rela-

tively little or no discomfort.

Any type of sigmoidoscope may be employed. The most important feature of any sigmoidoscope is the system of illumination. If lighting is adequate, the instrument is good.

We have used every sigmoidoscope, including that of the National Electric Instrument Co., Cameron, A. C. M. I., etc., and find them all satisfactory.

Always pass the instrument under direct vision, and see the lumen ahead before advancing. Be gentle!

Advise the patient that he will feel considerable cramping when the instrument reaches the recto-sigmoid. If the patient expects discomfort, he will be more cooperative.

The bowel should be prepared by cleansing enemas (avoiding soap) the night before and the morning of examination. Never use soap! Soap enemas often cause proctitis or sigmoiditis, and confuse the examiner.

The direction of instrumentation will be observed in the accompanying illustrations. The examiner should inspect the mucosa carefully both during the introduction of the instrument and during its withdrawal.

Roentgen Study Sigmoidoscopy is more valuable than x-ray study for the diagnosis of early rectal lesions. If there is any question of a higher level lesion, sigmoidoscopy should always be followed by a barium colon enema study.

This study should include the initial filling film, a post-evacuation film, and an air contrast study. Position of the patient

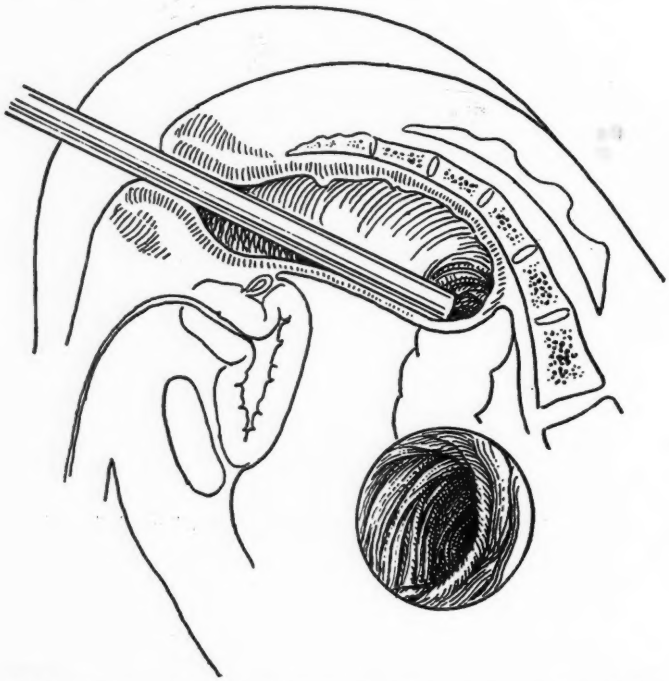


Fig. 3. The sigmoid is entered. Insert, sigmoid rugae as seen through sigmoidoscope.

Illustrations from "Ambulatory Proctology," Second Edition, by Alfred J. Cantor, M.D., Paul B. Hoeber, Inc.

should be left to the discretion of the Roentgenologist.

Remember that x-ray study is notoriously unreliable for the diagnosis of early rectal lesions.

Biopsy Every suspicious lesion should be biopsied. Remove the specimen, where possible, from the base of the growth, as well as from the outer aspects.

Frei Test If there is suspicion of lymphogranuloma venereum, 1/10 c.c. of Frei antigen is injected intradermally on the flexor surface of the patient's forearm.

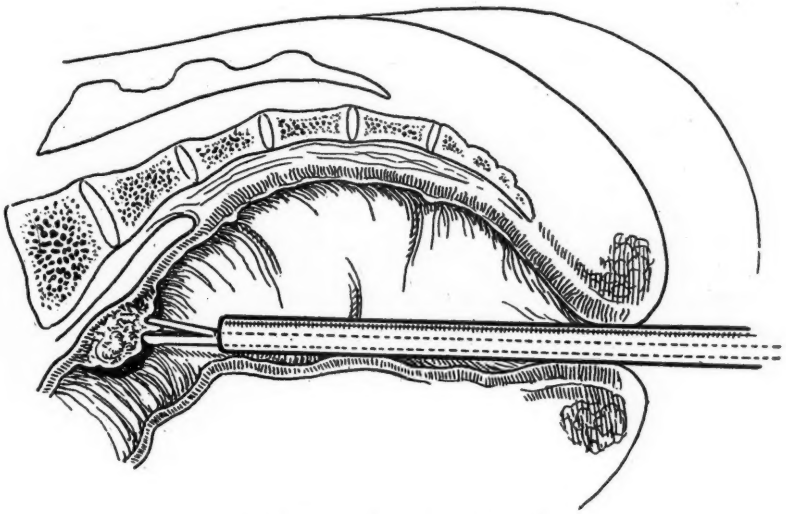


Fig. 4. Biopsy of mass in the sigmoid.

The control solution is similarly injected on the other forearm, and the test is read forty-eight and seventy-two hours later. A hard, red papule six mm. or more in diameter with a surrounding centimeter of erythema, is positive. The control, of course, shows slight or no reaction. Lygranum (prepared from chick embryo), is an excellent preparation for this test.

Other Laboratory Studies Tests for syphilis, gonorrhea, chancroid, tuberculosis, and other blood studies may be indicated in individual cases.

Diagnosis of Rectal Carcinoma by Smear Techniques In every case of visible tumor a diagnosis can be made without delay if a small specimen of tissue is removed and studied by the Papanicolaou stain technique. This is of great importance as it shortens the time interval between the initial consultation and the institution of treatment.

A sponge biopsy will also assist in rapid diagnosis, but will not provide the answer as quickly as the smear—stain technique.

Both of these methods should be supplemented by conventional biopsy study.

Stool Examination This is a much neglected diagnostic method, and is best handled by a competent laboratory. Details of stool study will be considered in a later article on Diarrhea.

ALFRED J. CANTOR, M.D.

Prolapse and Procidentia

This section will consider the surgery of prolapse and procidentia. The term *prolapse* indicates a descent of the mucosa alone. In *Figure 1* we see anorectal prolapse. Note the complete sphere.

In *procidentia* there is descent of the entire anorectal wall. *Figure 2* illustrates rectal procidentia and the diagnostic irregular, circular folds.

Procidentia may occur at any level, as illustrated by the sigmoidal procidentia of *Figure 3*. Procidentia of this nature may be caused by a large tumor mass. Occasionally such a mass may be present at the anus, as in *Figure 4*.

Figure 5 indicates the injection treatment of prolapse. This is particularly useful in children. The injection material may be quinine and urea hydrochloride or 5% phenol in oil. Notice the extra-rectal puncture point and finger in the rectum as a guide to prevent puncture through the rectal mucosa and subsequent infection.

Figure 6 demonstrates the linear cauterization technique for prolapse. Allis clamps grasp four quadrants of the prolapsed tissue and linear striping is then performed with a conventional

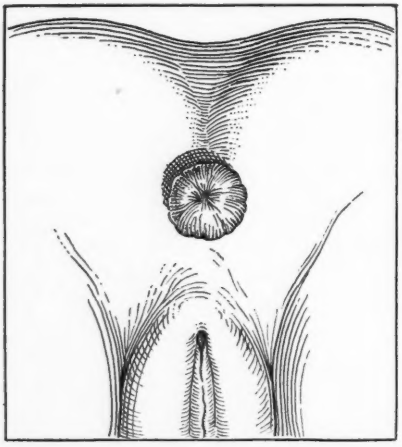


Figure 1

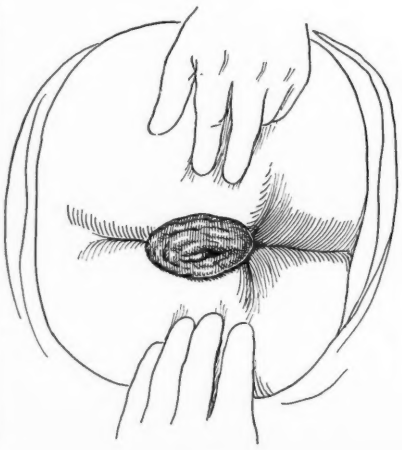


Figure 2

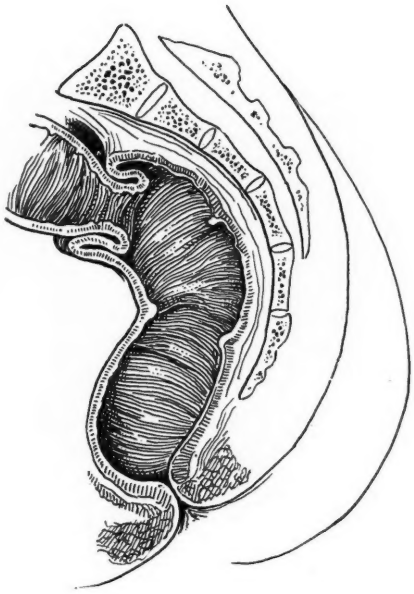


Figure 3

cautery instrument or the thermal cutting unit. This technique may then be followed by submucosal injections of 5% phenol in oil in all quadrants.

Linear cauterization combined with submucosal injection of the sclerosing solution is particularly recommended for elderly patients, and is often of value in procidentia in such patients.

Figure 7 illustrates the first stage in the quadrant excision technique for anorectal prolapse. Marker clamps indicate the four quadrants. Allis clamps may be employed if desired.

Figure 8 illustrates the use of a series of clamps to draw down the redundant mucosa. These clamps are applied one at a time from below upward until the redundancy is drawn completely outward. A suture ligature is inserted at the highest point. The tissue is then excised upward and inward to form a pedicle. The pedicle is tied at its base by the suture ligature and the redundant membrane is excised com-

Figure 4

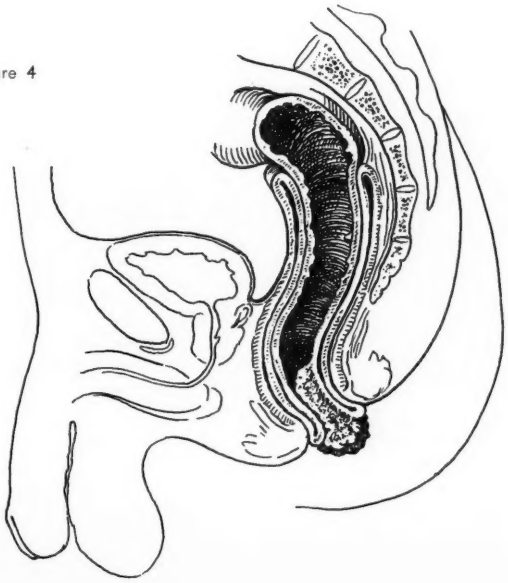


Figure 5

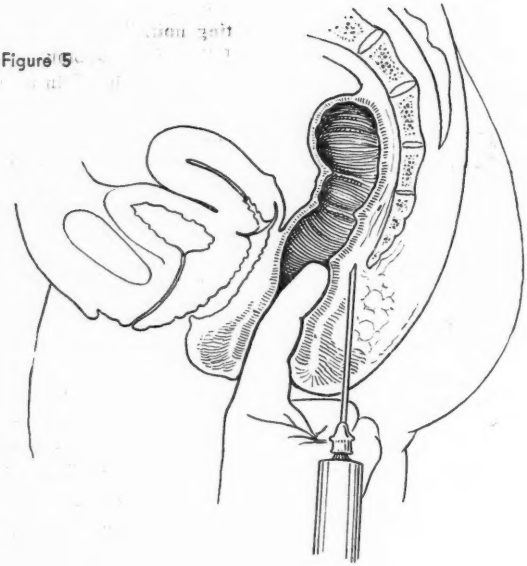


Figure 6 (left)

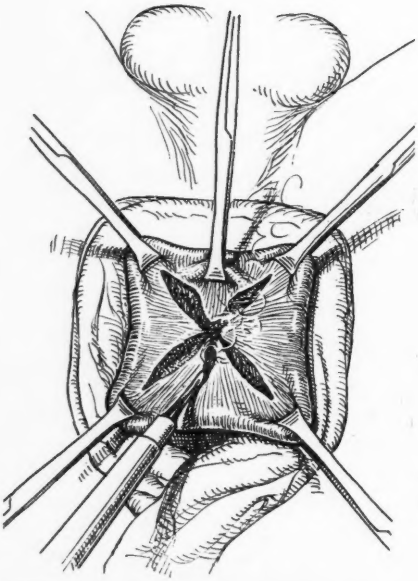
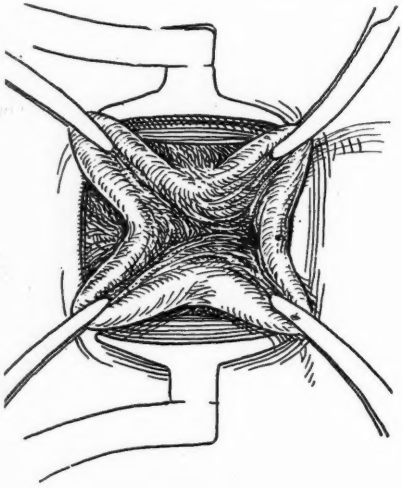


Figure 7 (below)



Illustrations from "Ambulatory Proctology," Second Edition, by Alfred J. Cantor, M.D., Paul B. Hoeber, Inc.

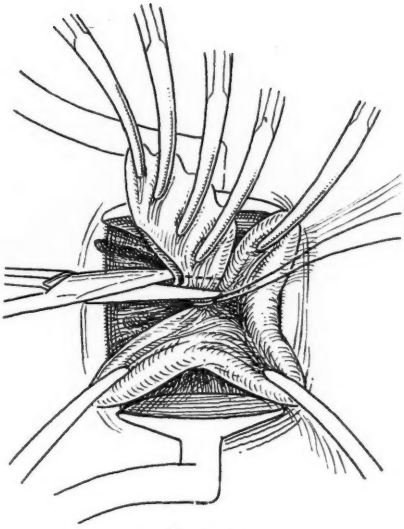


Figure 8

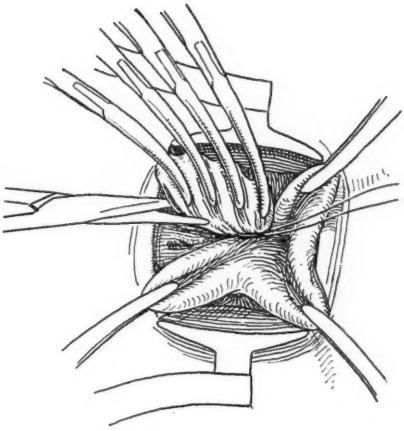


Figure 9

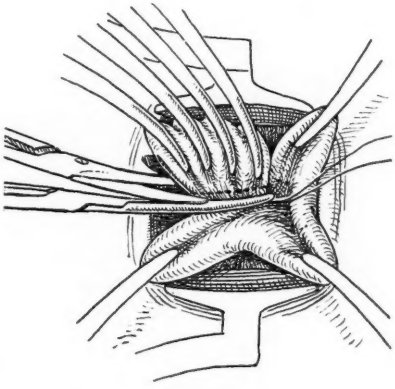


Figure 10

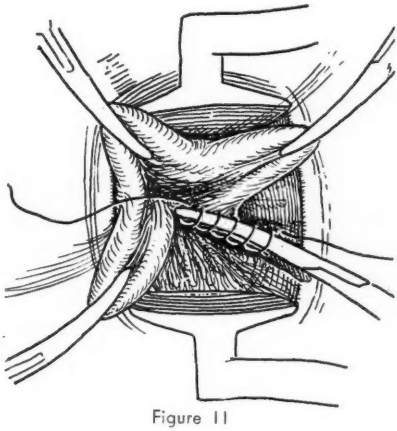


Figure 11

pletely. Illustrated in *Figures 8 and 9.*

Figure 10 indicates an alternative method of excision by crushing clamp and running ligature.

Figure 11 indicates an over-and-over running suture placed after excision of the mucosa superficial to the clamp.

Note that all techniques may be completely ambulatory, surgery being performed under caudal analgesia, and post-operative comfort being assured by the use of an oil soluble anesthetic infiltrated locally.

Another technique suitable particularly in children is the suture rectopexy technique of Ekehorn. This will be found illustrated in the second edition of Ambulatory Proctology (Hoeber-Harper).

ALFRED J. CANTOR, M.D.

EDITORIALS

The Grievance Committee and Malpractice

It has been suggested from many sources that county medical societies should establish grievance committees before whom complaints of dissatisfied patients may be heard and considered.

Such committees, no matter how called, are now functioning in several localities across the country. Their duty is to hear and to investigate the complaint of a patient respecting professional care rendered by an attending physician, and/or the allegedly excessive fees charged by him.

In so far as their activity respecting fee complaints is concerned, grievance committees can serve a great good to all concerned. In the experience of one fee complaint committee in a large county society, it has been found that in about 80 per cent of the cases the fees complained of are fair and reasonable. Most of these cases have been satisfactorily disposed of by simple explanation to the complainants. In those instances in which the committee has found that the fees charged are unusual, unreasonable or excessive, it has been suggested to the parties that the matter be compromised, or it has been directly suggested to the physician that the fee be fairly and appropriately reduced. The results have been satisfactory.

It is pointed out that, unless the patient has specifically agreed to pay a definite sum for the services, an implied contract arises which obligates him to pay the reasonable value thereof.

The handling of complaints of professional conduct poses a more difficult problem. Patients come before professional conduct committees complaining of professional service which has been rendered them. Some of these patients have suffered unusual complications; some present cosmetic defect or functional disability; and not a few have already been told by some physician that the treatment rendered was improper or negligent.

It is certain that the grievance committee dealing with complaints of treatment will sometimes find it difficult to convince the complainant, although it is the actual fact, that the attending physician is not responsible for an obviously bad result. It must be borne in mind, too, that a further charge may arise in some of these cases. The complainant may allege that the committee has conspired to conceal his right of action or has, in some other way, endeavored to mislead him to his injury.

The fact that a large number of physicians are reluctant to accept the intervention or to approve the functioning of professional conduct committees is understandable. There is a fear that the activities of grievance committees may result in an increase in the incidence of malpractice

claims. There will inevitably be the occasional case in which the opinion of the committee, if honestly formed, will be against the interest of the physician.

If the grievance committee is to serve a constructive purpose it can not start with the preformed conclusion that the doctor is always right, nor can it conceive that its function is routinely to "whitewash" the physicians who have complaints brought against them. An impression that the doctor is consistently given overly favorable treatment by the grievance committee is likely to be created and to circulate in the community, with injury to the society's public relations, unless the committee is competent and fair, and unless it deals intelligently and patiently with the complaints and with the individuals before it.

No claim or suit should arise when an attending physician has fully met the legal obligation owed his patient. The patient may not be in a position to know whether the required standard has been met or not. In many cases, after complete investigation, the grievance committee has the opportunity to inform and to reassure the patient—to make it clear that the physician does not deserve the criticism and blame which is being cast upon him.

On the other hand, instances of actual malpractice do occur and, if complainants are to be satisfied and the public interest served, the professional conduct committee can not avoid the ultimate issue—the question whether or not the attending physician fulfilled his legal duty to his patient.

It is obvious that the professional conduct committee must possess knowledge of the legal implications involved if it is to deal fairly and soundly with the controversies brought before it. Unless the committee possesses such knowledge and unless it is authorized to deal effectively and realistically with all matters given consideration, it should not function at all. Poor and inconclusive handling of professional conduct complaints can not but injure the professional group by creating a serious public relations problem and by adversely affecting the insurance interests of the membership.

What is the grievance committee to do with the case in which the evidence suggests or conclusively indicates malpractice? In considering this question it is assumed, a priori, that the committee or the medical society, has publicly invited dissatisfied patients to file complaints; that complete investigation is made of every complaint; that the committee understands the medical and the legal principles involved; and that, in the given case, the committee has concluded that the physician complained of did not, in his care of the complainant, act in a manner consistent with the standard of practice in the community.

The standard of practice consists always of what the ordinary reputable practitioner in the locality would do and of what he would refrain from doing in caring for a particular type of case. And so, in any case, the doing of something which the ordinary reputable practitioner would not do or the failure to do something which he would do, in the treatment of a similar case, constitutes actionable negligence or malpractice (assuming that the patient is thereby injured.)

The committee, having decided in the given case that the attending physician did not care for the complainant in accordance with the requirements of good practice is now faced with the problem—shall the patient be so advised? And if so in what manner and to what effect?

It seems clear, in the circumstances outlined, that the patient and the physician must be informed of the committee's conclusions. Further questions, however: Shall the patient be advised to sue the doctor? Shall the committee offer to help in the legal action? Shall the committee offer its good offices to attempt to effectuate a settlement of the matter? Or shall the committee simply report its conclusions to the patient, either pointing out or not

that it is now a matter for the patient's decision as to whether or not further action shall be had?

It may be pointed out that the record made by the grievance committee, in a given case, may be subpoenaed into court and that such a record might in itself make the case for the plaintiff.

Most physicians protect themselves with professional liability insurance. In policies of this type, there is generally a clause which provides that the control of the defense of claims shall be in the hands of the carrier—that the insured or any other person may not make an unauthorized settlement. It is likely that the carriers will, sooner or later, manifest an interest in the functioning of grievance committees.

It is questionable whether a grievance committee, dealing with other than fee complaints, should function in any medical society, except and unless such committee is developed and functions as an integral part of an over-all state or county association malpractice program.[1]

LOUIS J. REGAN, M.D., LL.B.*

Doctor Anonymous

"Your editorial on the question of level of surgical fee was well received in this hospital. American Medicine is now at the cross-roads. If physicians consider themselves to be merchants, with products to sell—government regulation may be expected. All merchants expect a price ceiling to be placed upon their merchandise.

"However, if physicians are artisans, and medicine truly an art, government regulation would obviously be impossible. No one can set a value upon a Rembrandt, nor can anyone set a value upon the skill, art and unique ability of the physician and surgeon.

"County Societies do attempt to set the upper limit of fees in some cases, and grievance committees are called into action. *It is not the proper function of grievance committees to set the upper limit of fee for legitimate services.* This is a matter between patient and physician only. Let us have more articles of this kind, and perhaps we will stem the tide toward socialized medicine!

"You may publish this letter, but please do not mention my name."

R.L., California

Answer:

This letter really deserves comment. Dr. R.L. prefers to remain anonymous. Until we are willing to stand and be counted, our opinions can bear little weight. If we are to be disciples of the truth, we must be prepared to follow the truth wherever it may lead. Too often we give only lip service to a concept of freedom, meanwhile bowing before the tyrant.

As indicated in my previous editorial on Patient-Physician Relationship and the Surgical Fee Schedule, the A.M.A. Judicial Council has officially stated that each physician may set his own fee, and component medical societies have no right to set the upper level of fee. If each locality wishes to set a regional lower limit to the fee schedule, to avoid the unfair competition of cut rate medicine, this is indeed a public safeguard.

However, even to consider penalizing the exceptionally talented or skilled physician or surgeon whose services are valued at a higher than average level, is undemocratic and un-American. Further, it is thoroughly illogical, as the writer of the above letter points out.

Medicine *is* an art. The artist gives of himself, his unique talent and skill, and his limited energies. This is beyond price. Who is to set a value upon human life? Who wishes to offer the proper level of fee for relief of suffering and pain?

In this writer's opinion it is not even proper subject matter for a grievance committee, except insofar as the grievance committee acts as a liaison between the

1. Regan, L. J.; Doctor and Patient and the Law, Chap. XX, The C. V. Mosby Company, 1949.

* Professor of Legal Medicine, College of Medical Evangelists; Professor of Forensic Medicine, School of Medicine, University of Southern California.

physician and the patient, to put the patient's mind at rest by justifying the fee in terms of the services rendered. The criterion, of course, need only be that there had been no misrepresentation of the services. The physician, of course, cannot claim to have cured cancer where none existed, or performed an operation when he did not actually do so. However, assuming legitimate services, the value of these services can be determined only by the physician, and not by the grievance committee or any other committee of the medical society. This is the ruling of the A.M.A., as well as the ruling of all logic and history.

Despite this, to this writer's knowledge, in one county of New York State, the voting privileges of one physician had been suspended by his society for a period of three years on the charge that his fee was too high for the services rendered. Oddly enough, this physician offered a surgical skill unique in his community, and there was no basis for comparison. However, even compared to the community's general surgeons, who could not render equally specialized care, his fee was very little higher.

Despite this, and despite the obvious ruling of the A.M.A. Judicial Council, the suspension was ordered by the Board of Censors.

Did the County Society membership rise in righteous indignation, and reverse the suspension order? No, they did not. They refused to stand and be counted. They did not realize that when the bell tolled for this man, it tolled for them. They did not realize that they were mourners at their own funeral.*

If we are to stem the tide toward socialized medicine physicians must first cease destroying themselves. Survival is possible only if we are united. If we classify ourselves as tradesmen, we must not be surprised if the Federal Government regulates the price of our product, and standardizes the quality at a low level. If we are artists, and practice medicine as an art, let us not prostitute our art.

To put it bluntly, it is time for the individual practitioner and the county societies to follow the precepts of medical ethics as established by the A.M.A. Medicine is an art, and not a business. The level of the individual physician's fee should be determined by the physician and his patient. It is not a matter of concern for the Board of Censors or Grievance Committees of any county society. A house divided against itself cannot stand.

Let your voice be heard. Stand and be counted, without fear and by name!

Physician Patient Relationship—New York City

The article written by Dr. Arthur M. Master, past president of the Medical Society of the County of New York, in the Journal of the American Medical Association, (October 25, 1952, Volume 150, pages 766-770) should be forcibly called to the attention of the medical profession. It is an excellent presentation of the danger inherent in the medical care plan of New York City known as the Health Insurance Plan for Greater New York, Inc. (H.I.P.).

The Health Insurance Plan of greater New York sounds the death knell for the physician patient relationship as we know it today. Free choice of physician and personal relationship between the physician chosen and the patient are obviously impossible under this system of practice.

As Dr. Master points out, this Health Insurance Plan receives a monopolistic subsidy from the City of New York, is also subsidized by employers, by physician members of the plan, by private foundations, by trade unions, and by at least two hospitals in New York that many physicians believe may be engaging illegally in the corporate practice of medicine.

The subsidy from the City of New York

* The State Society subsequently reduced the term of suspension by 1½ years. It is hoped that the A.M.A. Judicial Council will rule it out as completely invalid.

is not only undemocratic, but probably illegal.

There can be no doubt that if this type of scheme progresses very few private patients will remain. This is but the first step on the road toward compulsory health insurance.

A plan that operates only on subsidy, with apparently poor quality of medical care, is not for the American public. In New York City, where the highest level of medical care traditionally has been made available to the public, the lowered standards that must result from mass-marketed medicine is deplorable.

Private practitioners in New York City should unite, through their medical societies, and protest the use of their tax moneys in this undemocratic fashion. The physician is being forced to subsidize his own execution!

This argument is not to be construed as opposing either group practice or prepaid medical insurance plans. It is only the contractual combination of the two that makes the free choice of physician by the patient utterly impossible. Voluntary health plans, such as Blue Shield, are excellent. Coverage by such plans should be extended and made available to everyone who desires such protection.

Blue Shield and Group Health Insurance, Inc., plans, etc. require no undemocratic subsidy from tax funds, do not interfere with the normal physician-patient relationship, and — if anything — improve the quality of medical care by relieving both patient and physician of major economic considerations.

By contrast, the New York City Health Insurance Plan is subsidized by city tax funds, the patient has no free choice of physician, and the physician is paid a per capita fee per year—resulting in mass production medicine.

The admitted goal of the officials of H.I.P., as pointed out by Dr. Master, is a Federal plan of compulsory health insurance. If such a plan comes into being in the United States, to a large extent credit will go to the New York City Health Insurance Plan. To a larger extent, credit will go to the apathy of the physicians of New York City, and the apathy of their representatives in the County and State Medical Societies.

Dr. Master concludes that "Comprehensive medical care plans, at least in New York City, can operate in only one of three ways or their combination: (a) By subsidy that comes from philanthropy or from participating physicians by their willingness to render medical care at sub-standard fees; (b) Without subsidy, by giving low grade medical care; (c) By "sweat shop" labor of the participating physicians. The advertising used by the Health Insurance Plan of greater New York may be legal, but it also may be unethical."

The time for action is now! This action must come from the component county societies and the parent state society.

Priority III Physicians

The status of Priority III Physicians is of major current interest to all physicians under fifty-one years of age. Communications from Colonel Richard H. Eanes, Retired Chief Medical Officer, National Headquarters Selective Service System, Colonel H. W. Glattly, Chief, Personnel Division, Department of the Army, Office of the Surgeon General, and Dr. Cyrus H. Maxwell of the American Medical Association Washington Office, lead to the following conclusions:

Present calls are confined up to and through age thirty-seven. The Armed Services make calls on the Selective Service System to deliver a certain number of physicians to the Armed Services. The Selective Service System determines which ages are to be called.

The Defense Department has issued a list of modifications of AR 40-115, lowering the standards in specific situations which, in general, qualify most practitioners who are able to carry on full-time pri-

vate practice. The application of these lowered standards to those Priority I and II physicians who have been previously physically disqualified, will make some physicians in these groups available. Thus, the Priority I's and II's who will become available as a result of lowered standards correspondingly reduce the number of Priority III physicians to be called.

However, this review of Priority I and II physicians, (and Priority III physicians previously declared physically disqualified), will not be completed in time to enable the armed forces to meet their requirements for physicians for the next few months from those thus reclassified. Therefore, the call for Priority III physicians through the Selective Service System will continue as planned.

Colonel Glattly states, "Nevertheless, each previously disqualified medical special registrant, regardless of his priority, who is found acceptable for military service and brought to active duty as a result of the application of the revised physical standards will delay the call of one special registrant in a lower priority. For this reason, over a period of several months the rate of call of physicians classified as Priority III will be considerably slower than it would have been had the revised standards not been adopted."

Dr. Maxwell points out that the Department of Defense Policy regarding the granting of commissions to civilian physicians is as follows:*

"Appointment will be in grade determined by the applicant's age . . . and active professional experience subsequent to graduation from medical school as follows:

"Years out of Medical School Prior to July 1, 1952	*Army-Air Force*	*Navy*
0	1st. Lt.	Lt. Jr. Grade
4	Captain	Lt. Sr. Grade
11	Major	Lt. Commander
18	Lt. Col.	Commander
25	Colonel (1)	

*Fiscal year of 1953—not calendar 1953.

(1) Persons appointed in the grade of colonel must have achieved unequivocal prominence as authorities in their particular specialty and ordinarily must have been certified by one of the American Specialty Boards in the specialty for which that board is constituted.

Theoretically, all higher grades must be passed upon by a board of officers. The Navy adheres strictly to this for ranks of Lieutenant Commander and above."

This table would seem to indicate that most physicians forty and over would be commissioned at least as a Major in the Army or Air Force, and as a Lt. Commander in the Navy. Inasmuch as the real need is for officers in the lower ranks, it would seem to be questionable policy to commission physicians forty and over, particularly inasmuch as these men are usually in relatively poor physical condition, and would have to be accepted with waivers of disability.

It is very questionable whether or not these older officers would be productive. If they spend most of their time in hospital beds, *as patients, and become pension claims upon discharge*, there is very little to be gained by induction of this group.

Although the lowering of physical standards will qualify a productive group of physicians below thirty-six, or possibly thirty-eight years of age, it is very doubtful that this policy would be of value for those above thirty-eight years of age.

In effect, the present policy is that physicians who can carry on private practice are physically qualified for army service. Although this may be true of the younger age group whose physical disabilities are relatively little incapacitating because of their youth, physicians above thirty-eight years of age who would normally be deferred for physical disabilities, should probably continue to be deferred, rather than be considered acceptable with waiver of disability. These men, although engaged in private practice, usually sharp-

ly limit their hours and degrees of activity, to remain within their known physical and emotional reserve. It would obviously be impossible to utilize productively such men under those conditions (the conditions of private practice) in the Armed services. Indeed, as indicated, they would probably quickly become a present and future liability to the armed services and the Federal Government.

If we project the currently available figures for the Priority III group into the future, in terms of foreseeable needs, we can roughly estimate the time of call of the various age groups as follows:

PRIORITY III PHYSICIANS	
	Total
30—below	3,309
31—35	2,316
36—40	4,632
41—45	8,271
46—50	10,257
Over 50	4,301
Total	33,086
PHYSICALLY FIT 70%	
Total Available (85%)	
2,316	1,969
1,621	1,378
3,243	2,757
5,790	4,921
7,179	6,102
3,011	2,559
23,160	19,686
PHYSICALLY FIT 50%	
Total Available (85%)	
1,654	1,406
1,158	984
2,316	1,967
4,136	3,516
5,128	4,359
2,151	1,828
16,543	14,062

Assuming that 70% of the Priority III physicians are physically qualified, and that 15% are deferred because of hardship or because of being essential, there would be 3,347 physicians under 36 available in 1953.* Since the estimated call in 1953 is for 1,500 priority III physicians a balance of 1,847 would be left in 1954. In 1954 the estimated call is for 3,000 priority III physicians which would take the rest of the physically fit available physicians under 36 and 1,153 of those in the 36-40 age group in order to meet the quota. If we subtract 1,153 from 2,757 36-40 physicians there is a carryover of 1,064 physicians into 1955. In 1955 the estimated call is for 5,000 priority III physicians which would exhaust all of the remaining physicians age 36-40, plus 3,796 of those in the 41-45 age group. If we subtract 3,696 from the 4,921 physically fit available 41-45 physicians we have a balance of 1,525 physically fit 41-45 physicians remaining in 1956. Since the estimated 1956 call is for 1,400 priority III physicians we have a balance of 125 41-45 age group physicians carried over to 1957. As the estimated call in 1957 is for 2,400 priority III physicians this would exhaust all the physicians in the 41-45 group and would require 2,275 physicians from the 6,102 physically fit available physicians 46-50 years of age. However, since most of all physicians in the 46-50 age group would be over 50 years of age in 1957, this call could probably not be met from the present priority III physicians.

The above is predicated upon calling into service in addition to the present priority III physicians the non-veteran physicians graduating from medical school as they complete their internships. In 1958 these non-veterans should meet all the needs of the military forces.

We must bear in mind that approximately 15% of the group III physicians would be classified as essential to their community, and not "available."

This percentage must be taken into account in considering the above and will of course make calls on older age groups come more rapidly if the percentage deferred increases as we get to the older age groups. Also, as the deferred groups become available at a later date they will

* Federal Register Volume 18, Number 24, pages 1037-38.

be called ahead of the older physicians and there will be a mixture of age groups at all times.

Current figures indicate that approximately 25% have been declared physically unfit. However, re-examination of rejected physicians or their records would probably lower this number considerably.

It is obviously difficult to predict accurately what the situation will be at any given time. However, there is no doubt that the number of Priority III physicians to be called could be reduced considerably by certain modifications in policy:

1. The Armed Services should continue their efforts to obtain civilian physicians, particularly for the care of armed forces personnel dependents.

2. Medical talents already available in the armed forces should not be wasted, but utilized to the best advantage.

3. Physically disqualified priorities I and II physicians should be re-examined without delay so that these men may be reclassified in terms of the currently lowered physical standards, and brought into active duty before any Priority III physicians with comparable disabilities are called.

4. Previously physically disqualified Priority III physicians below the age of thirty-six should be re-examined without delay, and those found acceptable with waiver of disability should be inducted before Priority III physicians in the older age groups with similar waivers of disability are called.

5. Official policy should be established to set the upper age limit for those Priority III physicians to be inducted *with waiver of disability* at age thirty-eight. It is very doubtful that physicians in the age group beyond thirty-eight, with disabilities of physical or emotional nature, requiring waiver by the Armed Services, would be anything but a liability when inducted. These men would probably break down quickly, and become pension claims.

6. Under these circumstances there is no point in continuing and extending the Doctor Draft Law at the fifty-one age level under the terms of the lowered physical standards. It would be much more realistic to set this age level at thirty-eight for physicians who require waiver of disability. The fifty-one upper age limit is acceptable, of course, for all physically qualified physicians.

Bulletin

Physician draft calls for the April-June period have been reduced again, from 1200 to 966. Selective Service has therefore stopped physical examination and induction of all priority III physicians over *thirty*.

An estimated 2700 young physicians in priorities I, II and III will complete internship or residency training in June. These physicians may supply the major needs of the Armed Forces for the remainder of this year.

Office of The Secretary of Defense
Washington, D. C.
April 23, 1953

Dear Dr. Cantor:

This is in reply to your letter of April 8, 1953, requesting comments on a proposed editorial to be published in THE AMERICAN JOURNAL OF PROCTOLOGY.

Reference is made to the second paragraph of the first page of the proposed editorial, concerning the age limit on Priority III calls. The age limit was recently lowered by the Selective Service System to thirty-one years of age.

Reference is made to the first paragraph, page four, of the proposed editorial, concerning the number of physicians of the Priority III group to be called to duty during 1953, 1954, 1955, etc. Consideration is being given to a significant reduction in the over-all requirements for physi-

cians during fiscal year 1954 and beyond. At this time, definite figures on reduction are not available.

Thank you for the opportunity of commenting on your proposed editorial.

Melvin A. Casberg, M.D.
Assistant to the Secretary
(Health and Medicine)

✚

World Medical Association's Western Hemisphere Conference

The International Academy of Proctology has been honored by the World Medical Association in its first Western Hemisphere Conference by the selection of our president, Dr. Edgar Scott, to take part in the Specialty Panel as the representative in Proctology. The Academy will continue to present the latest developments in Proctology through this Journal, The Annual Teaching Meetings and Seminars, and its other publications, in a continued effort to merit the confidence of the World Medical Association.

Problems in Wet Colostomy Management Following Radical Pelvic Surgery. Use of a New Giant Balloon Catheter

The treatment of advanced pelvic carcinoma has witnessed the increasing use of radical surgery that contemplates total pelvic viscerectomy including a total cystectomy. Most surgeons continue to prefer ureteral transplantation into the sigmoid colon as the method of choice. With the use of the mucosa-to-mucosa type of anastomosis with the resultant minimization of stomal edema, urine frequently appears on the dressings as soon as the colostomy is opened. Many protective skin pastes are employed about the wet colostomy to prevent skin breakdown and away from the underlying healing wound. During this early period postoperatively John W. Bell, Masoa Yatsuhashi and Langdon Parsons in the *Am. Jour. Surg.* [*84*: 378-380 (Sept.) 1952] recommend the use of giant (40 F.) bulbous retention catheter to be tied into the projecting bowel at the completion of the operation, as the best means of insuring a smooth and complication free postoperative course for the patient. The use of this giant Foley Type catheter obviates the necessity of the patient purchasing several different sizes of colostomy rings and bags before the stoma has shrunk down to its final and permanent size. The tube is easily retained by inserting the bag below the level of the rectus abdominus muscle and partially inflating it with 5 to 10 cc. of water. This tube is intended to function as a temporary convenient means of collecting excreta until optimum healing has occurred and the stoma has shrunk to its permanent size, when it can then be replaced by a permanent colostomy ring and bag. It is claimed that the use of this tube minimizes the transient rise in blood urea nitrogen. commonly seen in the first postoperative week.

This giant Foley Type of catheter appears to be a valuable addition for the surgeon in caring for these patients more successfully in their immediate postoperative course. It should prove to be of great value in the future.

D.C.C.

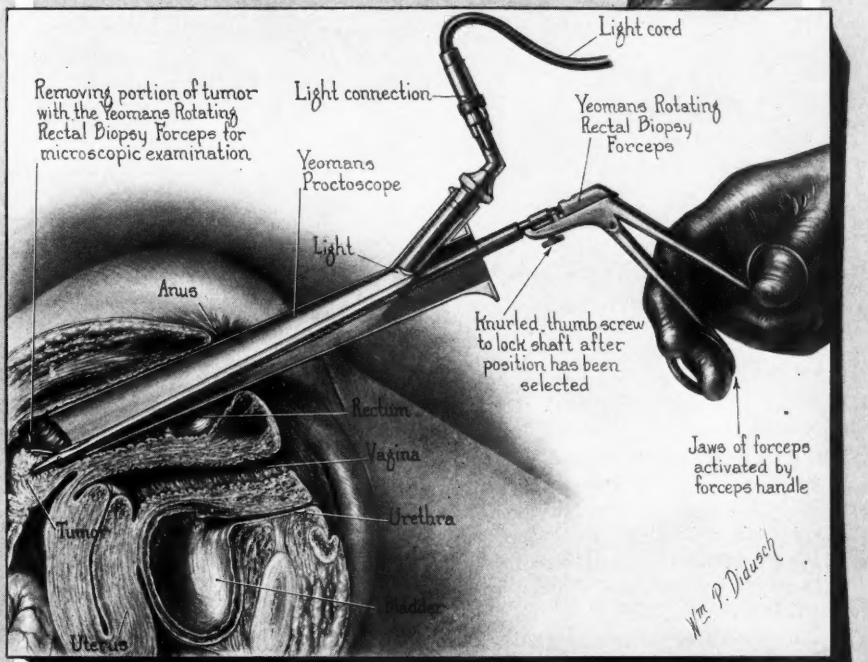
Blood Loss in Hemorrhoidectomies

In 22 consecutive hemorrhoidectomies the blood loss was calculated by weighing the sponges. It was found that the average blood loss was 222 cc. an amount much larger than that reported in the literature. P. J. Fuzy and H. A. Smith in the *Am. Jour. Surg.* [*84*:524-526 (November) 1952] suggest that patients who have bled preoperatively should have preoperative blood loss replacement.

D.C.C.

THE Yeomans PROCTOSCOPE

Cat. No. 293 *See Your Dealer*



YEOMANS ROTATING RECTAL BIOPSY FORCEPS

Cat. No. 387

ESTABLISHED IN 1900 BY REINHOLD WAPPLER

FREDERICK J. WALLACE, *President*

American Cystoscope Makers, Inc.

1241 LAFAYETTE AVENUE NEW YORK 59, N. Y.

Therapeutic Abstracts

ABSTRACT STAFF

Francis S. Adams, M.D.
Norman I. Albert, M.D.
Carrol J. Bellis, M.D.
C. H. Benage, M.D.
A. H. Borgerson, M.D.
Nathan Brody, M.D.
Donald C. Collins, M.D.
Virgil O. Fish, M.D.
Jerome Forman, M.D.
Paul Lahvis, M.D.
John J. Lorentz, M.D.
Harold Neifeld, M.D.
Caesar Portes, M.D.
Moorman O. Robertson, M.D.
Paul B. Van Dyke, M.D.
Sydney E. Weintraub, M.D.

Pseudocyst in the Transverse Mesocolon Producing Obstruction of the Duodenum at the Ligament of Treitz

William M. McMillan and R. H. Mason in the *Am. Jour Surg* [*84*:496-498 (Oct.) 1952] present an interesting single case-report from the Department of Surgery of Cook County Hospital, Chicago, concerning a thirty-three-year-old-Negro man admitted to that Hospital on February 19, 1951. He had had several days of vague epigastric pain eight months previously. His present illness began three days prior to admission and was characterized by painless vomiting. There was no previous history of trauma, drug ingestion, alcoholism or previous surgery. Upon admission examination of the abdomen revealed diffuse tenderness upon palpation with a questionable mass in the right upper quadrant. The next day the serum amylase and the urinary diastase were only mildly elevated. Levin-tube intragastric suction and adequate intravenous replacement therapy were promptly instituted and continued to the time of surgery. On the ninth post-admission day a barium meal revealed a hugely dilated stomach. Sixteen days after hospital admission abdominal exploration revealed a soft, large mass situated retoperitoneally between the leaves of the right transverse mesocolon and protrudin gthrough the ligament of Treitz, obstructing the duodenum at that point. This mass was opened and proved to be a pseudocyst of the pancreas. It was not excised, but it was drained. Anterior gastroenterostomy was performed to relieve the obstruction at the duodenal-jejunal juncture produced by this cyst. This patient made an uneventful convalescence and was dismissed from the hospital on the fortieth day after hospital admission. The patient was well on his three months' followup and the cyst had not reformed. The Authors consider this case-report to be an unusual type of a high small bowel obstruction produced by a hemorrhagic pseudocyst of the pancreas.

It is always better to totally excise these pseudocysts if possible to avoid frequent subsequent complications or recurrence. This fact was pointed out by the Abstractor in an article upon this subject in 1950. (AMA, Arch, Surg. *61*:524-539 (Sept.) 1950.). D.C.C.

—Continued on page 164

The Distracting Agony of Hemorrhoids

The torment of hemorrhoids disrupts normal mental processes. Reason, reflection, decision are difficult.

Physicians have for many years prescribed safe, sure Anusol Suppositories, which have given quick relief and peace of mind to thousands of men and women. For use with the Suppositories, we have now added Unguent made of the same ingredients.

The Anusol Suppository quickly forms a soothing, protective film over the irritated rectal mucosa, providing almost immediate relief. The new Unguent, externally applied to inflamed areas, gives prompt, cooling comfort.

Suppositories: boxes of 6, 12 or 24; Unguent in 1 ounce tube. Warner-Chilcott Laboratories, Division of Warner-Hudnut, Inc., New York 11, N. Y.

Prescribe Anusol® WARNER

SUPPOSITORIES UNGUENT

Prompt, Prolonged Relief Without Narcotics or Anesthetics

—Continued from page 162

Anastomosis About the Terminal Ileum

At the Cook County Hospital, Chicago, during the past five years; fifteen patients have had small bowel obstructions which required anastomoses about the terminal ileum. Ten patients had end-to-end ileoileostomies, two had side-by-side ileoileostomies and four individuals had short-circuiting ileocolostomies. Herbert D. Trace and Roscoe C. Giles in the *Am. Jour, Surg.* [*84*:473-475 (Oct.) 1952] on the basis of these fifteen patients operated upon, concluded that an end-to-end anastomosis should not be done in the region of the terminal ileum, as well as the side-to-side ileoileostomy. They recommended that when in doubt about a suture line, the best procedure is a short circuiting end-to-side ileocolostomy with a blind end closure of the distal stump of the ileum.

It would appear to the Abstractor that this series is too small upon which to base any conclusions of this character.

D.C.C.

Carcinoid Tumors of the Rectum

Carcinoid tumors of the rectum are reviewed in the *Am. Jour. Surg.* [*84*:617-619 (November) 1952] by Edward F. Cohen. The asymptomatic and benign character of this lesion is emphasized. One new case-report, aged 26 years, in which there were no symptoms or apparent metastasis is reported. The patient is reported well four years after the removal of the tumor.

D.C.C.

Problem of Defective Hemostasis in Surgery

Now one can determine the hemostatic efficiency of the blood by two simple tests, reported by Armand J. Quick in the *Am. Jour. Surg.* [*84*:614-616 (November) 1952] namely:—the one-stage prothrombin time and the prothrombin consumption time. These two tests are valuable not only to detect the defect but also to make an accurate diagnosis possible and to furnish means to test the effectiveness of therapy. The routine use of these two tests will do much to control bleeding and minimize the incidence of hemorrhage.

D.C.C.

Cavernous Hemangioma of the Rectum and Rectosigmoid Colon

A case of cavernous hemangioma of the rectum and rectosigmoid colon occurred in a 39-year-old white male as reported in *Am. Jour. Surg.* [*84*:507-509 (Nov.) 1952] by Alan A. Jaques. Twenty years ago remission was obtained by injecting a sclerosing solution into the superior-hemorrhoidal veins. However, the tumor had since re-established itself completely. Because fatal hemorrhage is a constant threat, complete extirpation is the treatment of choice.

D.C.C.

Anorectal Complications of Pregnancy

Anorectal disease in pregnancy as reported by Charles Evans Pope in the *Am. Jour. Surg.* [*84*:579-591 (November) 1952] is both directly and indirectly affected by specific anopelvirectal changes of pregnancy prenatally, with delivery and with changes of involution postpartum. The anorectum must be considered as an organ both pelvirectal as well as anorectal and as part of the levator ani. Pruritis and hemorrhoids are very common during pregnancy. This is a very excellent review of this subject and the reader is recommended to read the original article in its entirety.

D.C.C.

Explosion in the Colon during Electrodesiccation of Polyps

A case report by H. Gray Carter in the *Am. Jour. Surg.* [*84*:514-517 (November) 1952] is made of a 65-year-old, white, retired farmer who was admitted to the Dallas Veterans Administration Hospital in September, 1951. During the electrodesiccation of polyps at the rectosigmoid junction, accumulated gases exploded and produced lacerations of the colon at the splenic flexure. Emergency laporatomy and resection of the descending colon was necessary. The patient recovered. The Author suggests that a possible means of preventing such accidents in the future, is to be sure that the contents of the lumen of the bowel have been well evacuated with suction before applying the current.

D.C.C.

Reconstructive Perineal Repair of Rectovaginal Fistulas and Injuries Occurring at Parturition

A discussion is presented by Fred J. Hofmeister in the *Am. Jour. Surg.* [*84*:566-573 (November) 1952] of the anatomy of the perineum relative to the vagina and rectum. The progress and the stage of the pregnancy and the maneuver and technic of preventing rectal trauma are clearly detailed. Repairs of episiotomy, rectovaginal fistulas, as well as neglected or fresh lacerations are carefully described. This article is valuable as a fine reference. The illustrations are admirable.

D.C.C.

Electrodesiccation versus Electrocoagulation. Their Application to Adenomatous Polyps of the Terminal Bowel

Fulguration may be employed to destroy the smallest sized lesions, but it has a very limited value as reported in the *Am. Jour. Surg.* [*84*:510-513 (November) 1952] by Albert C. Haas. Electrodesiccation is the superior type of treatment for the great majority of polyps in the terminal portion of the colon. Charring of tissues must be avoided and will not occur if the machine is properly adjusted. Electrocoagulation is a dangerous treatment to employ in the sigmoid and rectum, particularly above the peritoneal reflection. Its effect is unpredictable and offers the risk of perforation of the bowel wall and hemorrhage.

D.C.C.

Oil-Soluble Caudal Anesthesia for Anorectal Surgery

The injection of 25 to 30 cc. of intracaine in oil with 1 cc. of epinephrine in oil, 1 to 500 dilution, into the sacral canal produces excellent anesthesia and prolonged postoperative analgesia for anorectal surgery. Harold Eidinoff in the *Am. Jour. Surg.* [*84*:592-595 (November) 1952] claims that this is a safe procedure, if his described technic is followed meticulously. The rate of injection of the anesthetic should not exceed 1½ cc. per minute. The Author cautions not to use this type of anesthetic if either blood or spinal fluid are aspirated from the sacral canal.

D.C.C.

Benign Lymphomas of the Rectum

206 instances of this pathologic entity have been reported in the past in the literature. Herbert T. Hayes and Harry B. Burr in the *Am. Jour. Surg.* [*84*:545-550 (November) 1952] report for the first time 22 instances among private patients that occurred in the past 12 years. It is pointed out that benign lymphoma of the rectum is relatively common and in fact it is the most common lesion involving lymphoid tissue. The microscopic histologic picture demonstrates a benign tumor. The clinical course of these lesions proves that they are benign. Excision or complete fulgeration will effect a cure.

D.C.C.

—Continued on following page

—Continued from preceding page

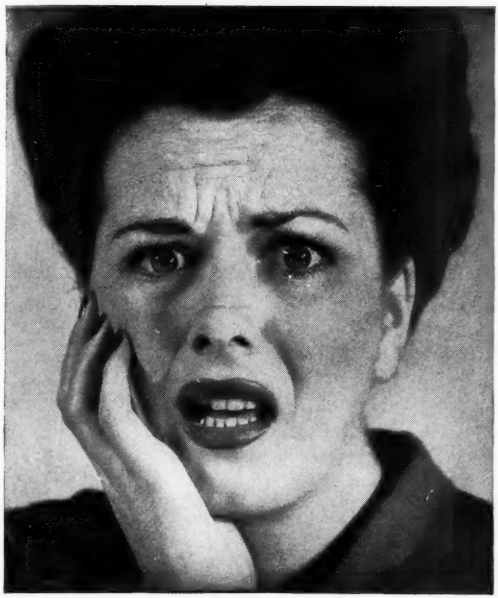
Anastomosis of the Rectum Without Suture. A Preliminary Report

Illydio Sauer and Harry E. Bacon present a new method of anastomosing proximal bowel to the lower rectum without the use of sutures in the *Jour. Internat. Coll. Surgs* [*18:*141-150 (August) 1952]. They point out that at present primary anastomosis in the region of the rectum has not been universally accepted because of the difficulty of controlling bacterial infection, the existence of a poor blood supply to the lower rectum following a resection, and the great technical difficulty often encountered in suturing the anastomosis in the restricted area in the bottom of the pelvis. When employing an anastomosis, a far wider expanse of lymphatic bearing mesentery can be excised than is possible when a Mikulicz-Paul modified procedure is used. The blood supply to the rectal stump is largely derived from the superior hemorrhoidal vessels and these are usually ligated in performing a low resection. This results in an inadequate blood supply to the rectal stump, which commonly leaks through the suture line; with a possible subsequent infection, stenosis, retraction and fistulization. In this situation, the sutures themselves may impair the blood supply to the line of anastomosis. A poor blood supply in a rectal stump may cause ischemic swelling. When the anastomotic wall become dilated by edema, frequently it is torn by the sutures in the anastomotic line.

It is true that the shorter the rectal stump is, the better will be its blood supply and its viability. The great number of operative procedures proposed for this area indicates that to date that all have inadequacies. Because of the above facts the Authors have proposed an ingenious clamp, comprised of three major portions and two auxiliary pieces. Its principle of operation employs the fundamental concept of the famous Murphy Button of an earlier era in American Surgery. This clamp, when properly assembled in place, proposes to hold both ends of the intestine in coaption until healing takes place and the approximated ends adhere firmly together. The intervening bowel diaphragm at the site of anastomosis is severed by screwing the two major portions together more tightly. After this severance is accomplished, the entire clamp with its retained segments of severed diaphragm is removed through the anal canal. The Authors claim that this clamp reconstitutes bowel continuity with a minimum of scar issue and no impairment to the blood supply at the anastomosis. It is claimed that all pressure is only made upon that portion of the bowel diaphragm that is to be removed, that the ends of the anastomosed bowel are always free and that healing progresses faster and better than by the suture method. Since the pressure on the ends is uniform throughout their circumference, coaption is optimum and leakage can not occur.

The clamp consists of a male part, a female part, and a bolt that screws on to the distal end of the male portion. The technic of employing this clamp is carefully described in great detail, and it appears that by following the explicit directions given by the Authors, its use would be a decided improvement in the successful surgical management of these trying operations. The following advantages are claimed for the use of this clamp:—1. A very low anastomosis can be safely performed. 2. Greater healing of the anastomosis proper is possible, since no sutures are employed. 3. The complications caused by sutures are thus eliminated. 4. Infection, distortion are prevented and better coaptation of the edges in the anastomosis line is expected to result in

—Concluded on page 168



When Therapy must be swift

INDICATIONS

- ★ **Hysteria**
- ★ **Alcoholism**
- ★ **Delirium Tremens and Allied Disorders**

Available on prescriptions only

Hysterical and emotional outbursts call for swift relief. Only in this way can the confidence of the patient and family be maintained.

For many years, ELIXIR GABAIL has been preferred by many physicians as an emergency sedative and hypnotic. It acts promptly and effectively without recourse to barbiturates or narcotics.

Each tablespoonful of ELIXIR GABAIL contains choral hydrate 4½ gr., potassium bromide 3 gr., strontium bromide 1½ gr., extract valerian (deodorized) 4½ gr., ammonium valerianate (deodorized) 1⅛ gr. in a palatably-flavored vehicle.

DOSAGE: 1 tablespoonful with water, when indicated. Not recommended for children or for prolonged use. Contraindicated in myocardial degeneration, severe cardiac or hepatic disease, arteriosclerosis, nephritis or impaired renal elimination. Caution—may be habit-forming. Supplied in bottles of 4 and 8 fluid ozs.

Physicians sample on request

Elixir Gabail *Bromo-Valerianate*

SEDATIVE and HYPNOTIC

THE ANGLO-FRENCH DRUG CO. (U.S.A.) Ltd.

75 Varick St., New York 13, N. Y.

—Concluded from page 166

better functional results. 5. This type of anastomosis is technically more accurate and easier to accomplish. 6. Since this clamp can be used for very low anastomosis, it will permit a wider resection below the lesion of possible involved tissues. However, the Authors warn that this clamp should not be used for carcinomas of the rectum situated below the middle valve of Houston. 7. The possible implantation of cancer cells in the line of anastomosis is minimized.

The Authors state that in this preliminary report, their conclusions are based upon work done on three dogs and that this instrument has not been actually used on a human as yet. However, the Abstractor personally believes that the perfection of this very ingenious clamp will prove to be a major advance in this type of surgery that will result in better final operative results and in the saving of many more lives of our patients suffering from cancer of the rectum.

D.C.C.

Hemorrhoidectomy at the Time of Delivery

A review of 59 cases of the past two years was presented by John W. H. Glasser in *Bulletin of the Margaret Hague Maternity Hospital* [6:12 (March (1953)].

The three cases having severe symptoms were operated on during the antenatal period, at 5, 8 and 8½ months—and there were no serious complications at ensuing delivery. The eight-month case had a tender rectum at delivery, which necessitated gentle but few rectal examinations. The eight-and-a-half month case had thrombosed hemorrhoids causing extreme discomfort. After removing two piles the patient did well during subsequent labor and delivery. Only one more tiny thrombosed internal hemorrhoid developed at six weeks postpartum and this subsided under therapy with Rectalgan (Doho). The five-month case delivered without complication. It was evident that in these few cases the recently operated rectum stood the hazards of labor and delivery without complication. The four cases with minimal hemorrhoids at delivery developed severe congestion and thrombosis in the first postpartum week and were operated on at three to six days after delivery with uniform relief of pain.

Hemorrhoidectomies were done on the 52 remaining cases immediately following delivery. Fifteen of these were classified as severe. For 34, primary colpo-perineopasty was also performed. Of these cases only six had received the customary injection of Zylcaine (Abbott) in their sphincters. The results, both functionally and anatomically, of all the cases were adjudged satisfactory at four and eight weeks postpartum.

The author concludes that the rectum contributes a generous share to postpartum discomfort of obstetrical patients. That hemorrhoidectomy immediately after delivery gains considerable relief and gratitude and that intrapartum hemorrhoidectomy, when indicated, is safe and causes no later difficulty. The author's experience indicated the value of Rectalgan therapy providing symptomatic relief and of Zylcaine for a long-lasting relaxation and anesthesia.

Carcinoma Associated with Fistula-In-Ano

The possibility of carcinoma in the anal fistula should be suspected when:—(A) the drainage become more mucinous, (B) the fistula becomes more painful and indurated, or (C) the fistula has been in existence for many years. Four cases are reported by J. M. McIntyre in the *Am. Jour. Surg.* [*84*:610-613 (November) 1952].

D.C.C.

FIFTH ANNUAL CONVENTION

The Fifth Annual Convention of the International Academy of Proctology will be held at the Plaza Hotel in New York, N. Y., Friday, Saturday, Sunday, May 29, 30 and 31, 1953, and will be preceded by a "Wet Clinic" and Seminar at the Jersey City Medical Center under the direction of Dr. Earl J. Halligan, Thursday, May 28, 1953.

The complete program appears in this issue of The American Journal of Proctology.

Members of the medical profession are cordially invited to attend. There will be no registration fee.

ANNUAL MEETING OF BOARD OF TRUSTEES

The annual meeting of the Board of Trustees of the International Academy of Proctology will be held at the Plaza Hotel, New York, N. Y., May 29, 1953, at 8:00 P.M.

ANNUAL MEETING OF THE INTERNATIONAL ACADEMY OF PROCTOLOGY

The annual meeting of the International Academy of Proctology will take place Friday morning, May 29, 1953, at the Plaza Hotel in New York, 8:00 A.M.

Those affiliated with the Academy are urged to attend this business meeting.

DINNER DANCE

A Dinner-Dance for members of the International Academy of Proctology and guests attending the Fifth Annual Convention will be held at the Plaza Hotel, New York, N. Y., on Saturday evening, May 30, 1953. Reservations may be obtained at the registration desk of the convention.

TEACHING FILM SEMINAR

The teaching Film Seminar of the International Academy of Proctology, which was so enthusiastically acclaimed last year, will take place at the Plaza Hotel, in New York, Sunday, May 31, 1953.

Dr. Edgar Scott of Birmingham, Alabama, is Chairman of the Film Seminar.

BOOK REVIEWS
FOR PROCTOLOGISTS

BASIC PRINCIPLES OF CANCER PRACTICE. A Book on Diagnosis, Prognosis, and Treatment of Human Neoplasms for the General Practitioner and Medical Student: By Anderson Nettleship, M.D., Professor of Pathology, University of Arkansas School of Medicine; Pathologist-in-Chief, University Hospitals, Little Rock. 398 pages with 106 figures. Baltimore, The Williams & Wilkins Company, 1952. Price $7.00.

This book has apparently been written in an attempt to persuade the general practitioner that Cancer can be cured if the diagnosis is made sufficiently early. This is a worthy goal in writing. The author will succeed, however, only insofar as the book reaches the general practitioner.

The book is well written, and reading is simple. The authors approach to Cancer as a Systemic Disease helps clarify the problem. This reviewer is pleased to see the statement, "It is better to sustain the families hopes until the fatal nature of the disease becomes apparent to all." Too often patients are abandoned by the physician, only to fall into the hands of fringe practitioners.

It is also good to see the statement, "One of the weakest points in the Cancer attack is the fatal time-lag from suspicion to recognition, from diagnosis to treatment." Cancer must be recognized early, and the biopsy-smear procedure described by Cantor will assist the Proctologist greatly in that direction.

There is a summary at the end of each chapter to facilitate the students grasp of the text. The section on methods of diagnosis is particularly valuable.

Proctologists will be particularly interested in the section on Neoplasms of the Gastro-intestinal Tract. He should also be particularly interested in the section on the Biochemistry of Cancer.

PHARMACOLOGY IN CLINICAL PRACTICE. By Harry Beckman, M.D., Director, Departments of Pharmacology, Marquette University Schools of Medicine and Dentistry; and Consulting Physician, Milwaukee County General Hospital and Columbia Hospital, Milwaukee, Wisconsin. 839 Pages, 152 Figures, 48 Tables. W. B. Saunders Company, Philadelphia and London, 1952.

This splendid volume is offered by the author as a substitute for his *Treatment in General Practice*. It is more than a substitute. It represents, in the opinion of this reviewer, a forward step in the teaching of Pharmacology and Therapeutics.

The first section of the book deals with the Clinical Use of Drugs. Practically all the major problems of medicine and dentistry are covered in this section from the clinical point of view.

In a relatively brief second section, there is a compendium of drugs. Here the reader will find, for reference only, some of the commercially available preparations, and some of the chemical and physical data concerning the drugs discussed in the first section of the book.

The proctologist, and any surgeon who employs drugs with possible allergic reactions, should read the section on Allergy.

There is an excellent brief section on Technique of Caudal Anesthesia, Infiltration and Regional (Blocking) Anesthesia, and all other types of anesthesia.

The antibiotics are well described, and

—Continued on page 172

why DESITIN®

hemorrhoidal
SUPPOSITORIES
with **cod liver oil**

are safe, conservative therapy
in **hemorrhoids**

more effective . . . . because they provide healing crude Norwegian cod liver oil (rich in vitamins A and D and unsaturated fatty acids, in proper ratio for maximum efficacy).

more comforting . . . emollient, protective, lubricant to relieve pain, itching and irritation rapidly . . . to minimize bleeding and reduce congestion.

safe, conservative . . . . . contain no styptics, narcotics or local anesthetics, so they will not mask serious rectal disease. Easy to insert and retain.

Composition of Desitin Suppositories: crude Norwegian cod liver oil, lanolin, zinc oxide, bismuth subgallate, balsam peru, cocoa butter base. Boxes of 12 foil-wrapped suppositories.

for **samples,** please write . . . . **DESITIN** CHEMICAL COMPANY ●
70 Ship Street • Providence 2, R. I.

—Continued from page 170

the material is fundamental.

Treatment of the various parasitic intestinal infestations is detailed. The treatment of ulcerative colitis is described.

The section dealing with the Surgical Specialties is especially well written, and will be of interest to the proctologist and the general surgeon as well.

The text is well written throughout, and well illustrated. It is the best clinical approach to pharmacology that this reviewer has ever seen.

The book should be of value to the medical student, the clinician, and the surgeon.

PHYSICAL DIAGNOSIS. By Harry Walker, M.D., F.A.C.P. Professor of Clinical Medicine, Medical College of Virginia, Richmond, Virginia. 461 pages. 126 illustrations. The C. V. Mosby Company, St. Louis. 1952. Price $8.00.

This reviewer finds Walker's Physical Diagnosis of particular interest inasmuch as it offers contributors from various fields of medicine, and thus does not represent a single, slanted viewpoint. It is a well written text, and the illustrations are particularly good.

The format of the book makes for easy reading.

Unfortunately developments in roentgenography, electrocardiography, etc., have reduced attention to physical diagnosis. Of course, relatively minor physical changes are best detected by mechanical or electrical means. However, physical diagnosis continues to be the keystone of examination.

The best diagnostician is the one who bases his laboratory requirements upon a careful physicial examination. For the student, the clinician, and the specialist in every field, an authoritative textbook on physical diagnosis should be required reading.

The general surgeon and the proctologist will find the section on the Abdomen well written and very complete. I would emphasize the author's statement that, "no physical examination is complete without a rectal examination."

This text is recommended.

NEW AND NONOFFICIAL REMEDIES, 1952. Issued under the direction and supervision of The Council on Pharmacy and Chemistry American Medical Association. 838 pages. Philadelphia, London and Montreal: J. B. Lippincott Company, 1952. Price $3.00.

New and Nonofficial Remedies is an annual publication of the Council on Pharmacy and Chemistry of the American Medical Association. New drugs are considered for inclusion in this text when they are submitted by the various pharmaceutical firms. Satisfactory evidence in support of the claims made must also be submitted.

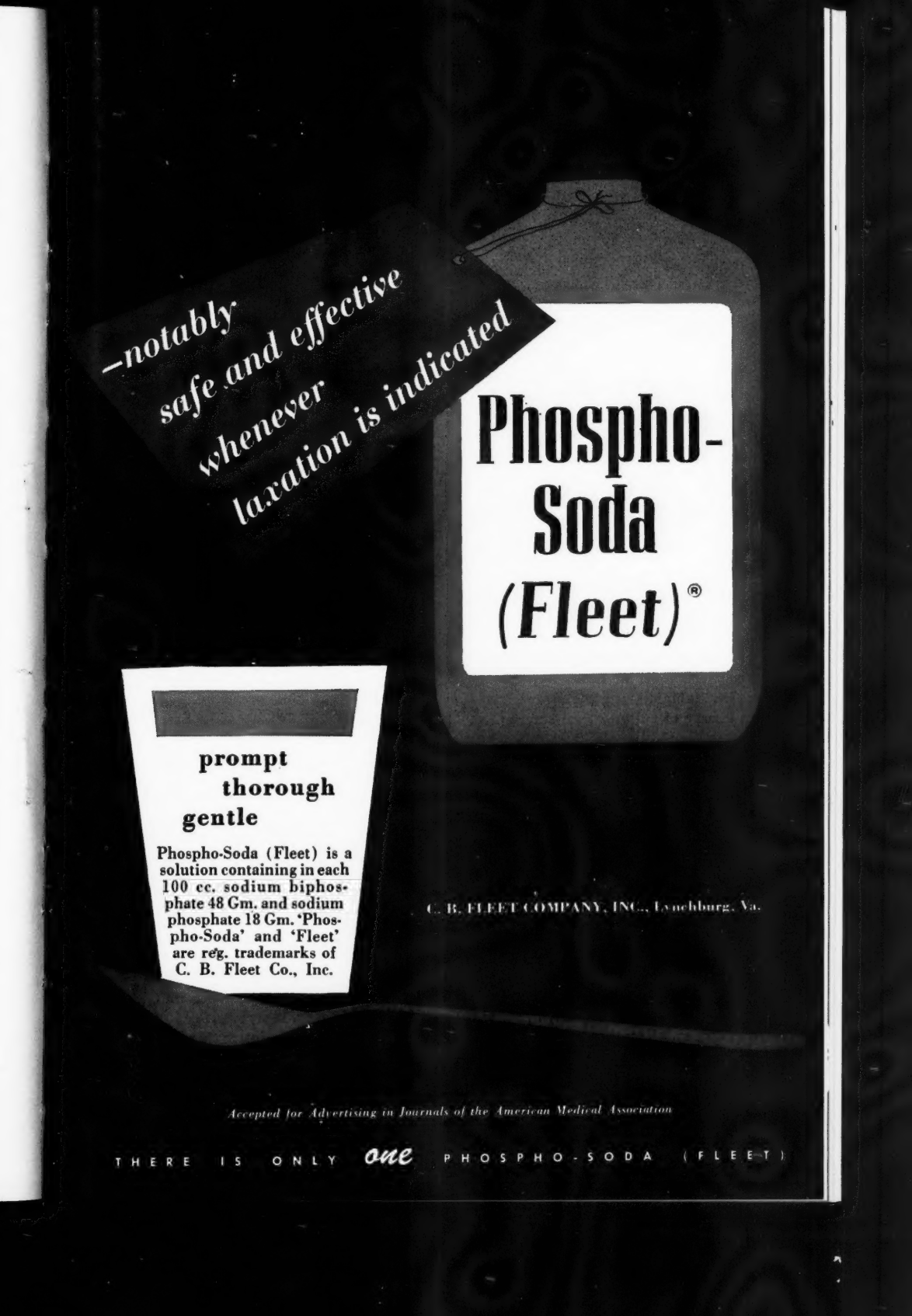
In the first section of the book preparations are described in broad terms, and there are monographs on the actions and dosage of specific preparations. In the second section the standards for Council-accepted drugs are described, together with tests and physical descriptions.

Annual revision of this text is necessary to insure the timeliness of the therapeutics offered.

The accuracy and authority of the material in New and Nonofficial Remedies needs no comment from this reviewer. This is a text that should be in the library of every physician who employs drugs in therapy.

EMERGENCY SURGERY Part IV. By Hamilton Bailey, F.R.C.S. (Eng.), F.A.C.S., F.I.C.S., F.R.S.E., Emeritus Surgeon, Royal Northern Hospital, London: Senior Surgeon, St. Vincent's Clinic: Surgeon, the Italian Hospital and Consolation Hospital, Lambeth: General Surgeon, Metropolitan Ear, Nose and Throat Hospital; formerly External Examiner in Surgery, University of Bristol. Assisted by

—Concluded on page 174


—notably safe and effective whenever laxation is indicated
Phospho-Soda (Fleet)®
prompt
thorough
gentle
Phospho-Soda (Fleet) is a solution containing in each 100 cc. sodium biphosphate 48 Gm. and sodium phosphate 18 Gm. 'Phospho-Soda' and 'Fleet' are reg. trademarks of C. B. Fleet Co., Inc.
C. B. FLEET COMPANY, INC., Lynchburg, Va.
Accepted for Advertising in Journals of the American Medical Association
THERE IS ONLY one PHOSPHO-SODA (FLEET)

—Concluded from page 172

Norman M. Matheson, M.B., Ch.B., M.R.C.P. (Lond.), F.R.C.S. (Eng.), F.A.C.S. Surgeon, Ashford Hospital, Middlesex Sixth Edition Baltimore: The Williams and Wilkins Company 1952. illustrated. $25.00 for 5 part set.

Part IV of this unusual set of Emergency Surgery volumes was issued in January of 1952. The standard of writing and illustration found in the first three parts is maintained. The level is very good.

This volume considers the lungs, the heart and pulmonary vessels, and the thorax generally, abscess of the breast, the spine, the head and neck, urgent surgery of blood-vessels, the control of hemorrhage from blood-vessels of the extremities, compound fractures, joints, tendons, nerves, and gangrene.

The text is profusely illustrated, and each illustrations indicates a practical procedure.

Although part IV contains nothing for the proctologist or gastroenterologist, the general surgeon will find it of inestimable value. Indeed, it is the opinion of this reviewer that this set of books belongs in every hospital and medical library, and in the library of every general surgeon.

THIS HOSPITAL BUSINESS OF OURS. By Raymond P. Sloan. 331 pages. G. P. Putnam's Sons, New York, 1952.

Most physicians are interested in the problems of hospital management. This is the first book to present an interesting, readable account of the problems involved in developing and maintaining a hospital.

Hospital trustees, and physicians actively engaged in the management problems of hospitals, will welcome this volume. However, the book is particularly intended for the Trustee. Recent problems in hospital management, particularly in the relationship between the attending staff and the Trustees, as was demonstrated in Danbury, Connecticut, can be avoided by the proper delegation of responsibility. This book should help the reader in understanding the need for the development of such responsibility. The section on Medical-Staff Relationships should be particularly valuable in avoiding controversies.

GYNECOLOGIC AND OBSTETRIC PATHOLOGY. By Emil Novak A.B., M.D., D.Sc. (Hon., Trinity College, Dublin: Tulane), F.A.C.S., F.R.C.O.G. (Hon.) Assistant Professor Emeritus of Gynecology, The Johns Hopkins Medical School; Gynecologist, Ban Secours and St. Agnes Hospitals, Baltimore, Fellow and Past President, American Gynecological Society. 595 pages with 630 illustrations, 19 in color. Third Edition. Philadelphia and London: W. B. Saunders Company, 1952. Price $10.00.

The third edition of this excellent text shows considerable re-writing and some revision throughout. Many new illustrations have been added, and all illustrations are excellent.

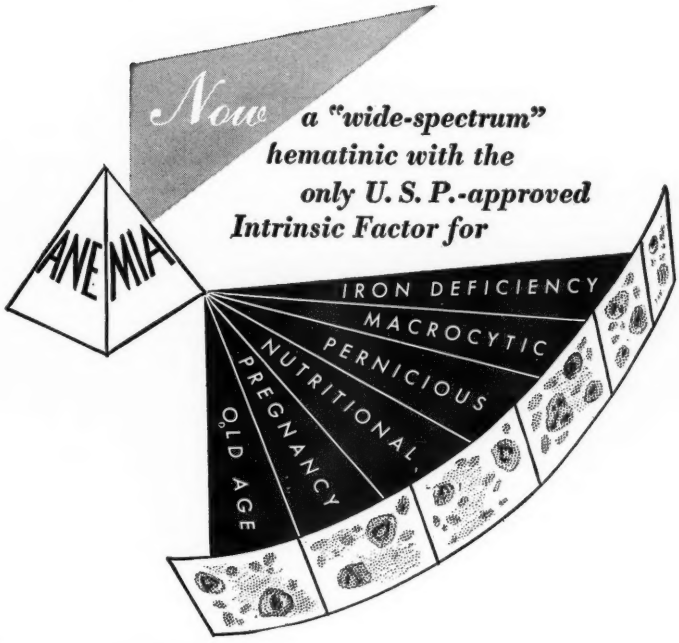
This text will be valuable in the library of all general surgeons, but is especially valuable to the gynecologist and obstetrician.

There is little of interest to the proctologist. However, consideration is given to endometriosis of the rectum and sigmoid. Granuloma inguinale is also considered and well illustrated.

ABUNDANT LIFE. By Francis H. Glazebrook, M.D., 185 pages. The Christopher Publishing House, Boston 1952. Price $3.00.

This book is written to inform the laymen. It is written in simple style, and without too many technical terms. It is written in personal fashion. For example, the doctor compares the "Bonnyclabber" of Virginia, during his childhood, with the "Yogurt" of today.

The book is sufficiently interesting and general to be advantageously recommended to patients. The stress is on nutrition, as this is a good "slant."



BINAEMON®

may be prescribed for any form of anemia—hypochromic, microcytic, macrocytic, normocytic, or pernicious—for it supplies in each easy-to-take tablet five ingredients needed for adequate treatment of any and all of these blood diseases. Binaemon contains Bifacton® (Vitamin B_{12} with Intrinsic Factor Concentrate), 1/9 U.S.P. unit; folic acid, 0.8 mg; vitamin C, 50 mg; ferrous sulfate, 133 mg; and liver concentrate, 100 mg. Because Binaemon supplies intrinsic factor, it provides a safe hematinic, for it assures B_{12} absorption and prevents folic acid from masking the symptoms of incipient pernicious anemia. Prescribe Binaemon for all your anemic patients.

Binaemon is available in bottles of 50 tablets.

DOSAGE: For most anemias, 3 Binaemon tablets a day. In severe anemia, including macrocytic anemia of pregnancy, 6 tablets. In pernicious anemia, 9 tablets.

Organon INC. • ORANGE, N. J.

LETTERS TO THE EDITOR

—Concluded from page 108

This has never been a serious problem in my experience. However, it is my opinion that further surgery should be avoided in such cases. —*Editor.*

Neobacin in Amebiasis

Dear Doctor:

Can you tell me anything about Neobacin for the treatment of amebiasis? I would appreciate whatever information you might provide.

Sincerely

R.C., Omaha, Nebraska

Neobacin is an antibiotic combination of Bacitracin and Neomycin. Bacitracin is particularly effective against gram positive organisms, while Neomycin acts against gram negative as well as gram positive bacteria. These antibiotics are poorly absorbed from the gastrointestinal tract and may thus be given in very high dosage.

The combination is apparently more effective than oral Bacitracin alone. One crushed Neobacin tablet four times daily was given to a group of 8 patients with amebiasis and 36 patients with infantile diarrhea (Felsenfeld and co-workers), with good results. The dysentery subsides within a matter of days, but the stools must be watched carefully to be certain that the patient does not remain a carrier.

Other supportive measures are always indicated, such as parenteral fluids to control dehydration.

Two tablets 3 times a day for 14 days is about the average adult course of treatment. Usually this produces symptomatic relief and negative stool. —*Editor.*

The Radiotome Surgery Unit

RECOGNIZED AIDS IN GENERAL SURGICAL MANAGEMENT

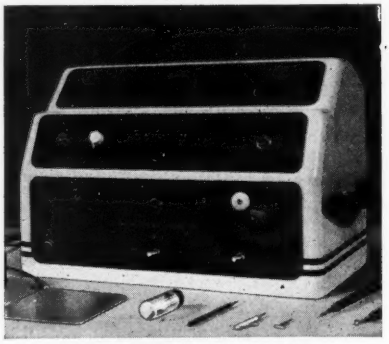
Indicated in:

GENERAL SURGERY
DERMATOLOGY
GYNECOLOGY
E.E.N.T.
PROCTOLOGY

A fully rectified and filtered three tube cutting and coagulation instrument, with facility for combining D'Arsonval Spark Gap coagulation or Oudin desiccation—A feature is the obtaining of various types of current by means of a dual-pedal footswitch, at the operator's immediate selection.

Write for descriptive literature

Outstanding in Performance



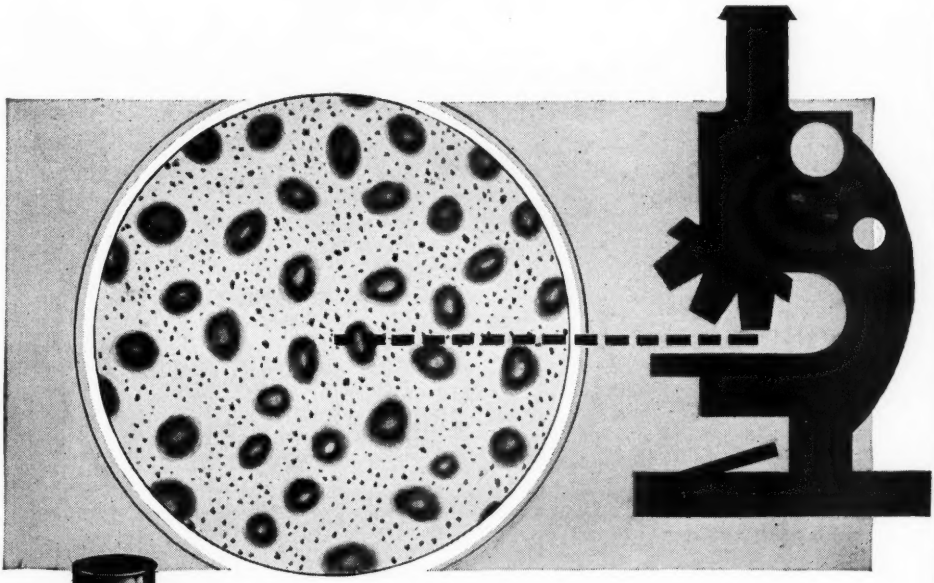
RADIOTOME—Model STS
Long Life — Portable
For office or specific hospital use.
(Other models available in various price ranges)

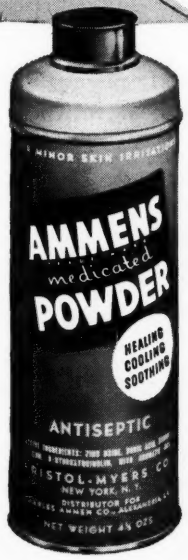
COLES CORPORATION

3212 Market St.
Philadelphia 4, Pa., U.S.A.

Hot weather skin irritation?

Use AMMENS for quick relief





The starch granules, evenly dispersed in a sea of talc, provide a maximum surface area for the absorption of irritating moisture. Macerated crevices are protected and healing is promoted.

But Ammens is more than a soothing powder. Zinc oxide, boric acid and oxyquinolin are carefully blended with the starch and talc. These medicaments provide a barrier which helps protect irritated areas against bacterial invasion. Growth of bacteria is discouraged.

Use and recommend Ammens Medicated Powder whenever your patient presents a skin irritated by chafing or other mechanical trauma, or when the skin is excoriated by moisture. It soothes, aids healing. Its faintly medicinal odor makes it especially suitable for professional recommendation.

AMMENS® medicated powder

BRISTOL-MYERS COMPANY • 19 WEST 50 STREET • NEW YORK 20, N. Y.
DISTRIBUTOR FOR CHARLES AMMEN CO. • ALEXANDRIA, LOUISIANA

Newer Medicinals

Antrenyl Bromide (New Package Size), Ciba Pharmaceutical Products, Inc., Summit, N. J. Anticholinergic agent indicated as an adjunct in the management of peptic ulcer and spasm of the gastrointestinal tract. **Dose:** As determined by physician, **Sup.:** In bottles of 50 and 1,000 5 mg. scored tablets.

Bacitracin Parenteral, Parke, Davis & Co., Detroit 32, Mich. Antibiotic effective against a broad range of gram-positive organisms and penicillin-resistant strains. **Dose:** For hospitalized patients only, amount as determined by physician. **Sup:** As a dry powder in vials containing 50,000 units of Bacitracin.

Bicillin with Sulfose Suspension, Bicillin with Sulfose Tablets, Wyeth, Inc., Philadelphia, Pa. In treatment of all infections caused by organisms sensitive to the action of penicillin or the sulfonamides. **Dose:** As determined by physician. **Sup:** Suspension, in bottles of 3 fl. oz.; Tablets, in bottles of 36 tablets.

Bifacton Tablets, Organon, Inc., Orange, N. J. Enables vitamin B-12 utilization by pernicious anemia patients who lack intrinsic factor for the alimentary absorption of vitamin B-12, and also permits the treatment of other disturbances where a deficiency of gastric intrinsic factor is involved. **Dose:** Two tablets a day. **Sup:** In boxes of 30 tablets.

Covicone Cream, Abbott Laboratories, North Chicago, Ill. Protection of skin from occupational dermatoses, everyday contact skin allergies, inflammation from body fluids, and protection from scratching. **Dose:** Twice daily for 10 days to 2 weeks, then one application daily. **Sup:** In tubes of 1 oz. and jars of 1 lb.

Distrycin, E. R. Squibb & Sons, New York 22, N. Y. In all conditions for which streptomycin or dihydrostreptomycin are usually prescribed. **Dose:** As determined by physician. **Sup:** In vials of 1 Gm. and 5 Gm.

Donnalate Tablets, A. H. Robins Co., Inc., Richmond, Va. In the medicinal management of peptic ulcer. **Dose:** One or 2 tablets orally at intervals according to the schedule established by the physician. **Sup:** In bottles of 100 and 500 tablets.

Gantricillin Tablets, Hoffmann-LaRoche, Inc., Nutley, N. J. For the treatment of infections susceptible to penicillin or sulfonamides. **Dose:** As determined by physician. **Sup:** In bottles of 24, 100 and 500 tablets.

Gelfoam Powder, The Upjohn Co., Kalamazoo 99, Mich. For oral use as an aid in attaining hemostasis in gastro-duodenal hemorrhage. Dose: Two tablespoonsfuls of product swallowed with the aid of 200 cc. of water or saline containing 1,000 units of thrombin, followed every 2 hours by 2 tablespoonfuls of product swallowed with the aid of 50 cc. of water containing 250 units of thrombin: aluminum hydroxide gel in tablespoonful doses every 3 hours, transfusions of whole blood, bed rest, and the liquid diet of the conservative treatment are also employed. If this treatment doesn't control hemorrhage in 48 hours, surgery must be employed. **Sup:** In paper cans containing 10 Gm.

Improved Lusyn, Maltbie Laboratories, Inc., Newark, N. J. In corrective therapy for overstimulation of the parasympathetic and central nervous systems, in functional gastrointestinal disorders such as intestinal spasm, biliary spasm, pylorospasm, cardiospasm and irritable colon. **Dose:** One or 2 tablets before meals, or as determined by physician. **Sup:** In bottles of 100, 500 and 1,000 tablets.

Mabutone Tablets, Reed & Carnrick, Inc., Jersey City 6, N. J. Triple-action sedative, relaxant and antidepressant for use in a wide variety of psychotic, neurotic and psychoneurotic conditions. **Dose:** As determined by physician. **Sup:** In bottles of 50, 100 and 1,000 tablets.

—Concluded on page 180

NEO-CULTOL
L. Acidophilus in chocolate-flavored mineral oil jelly
friendly in taste – tastes like chocolate pudding – readily taken by children . . . or adults.
friendly to normal aciduric flora – the type essential to normal peristalsis. Suppresses putrefactive bacteria to obviate distressing flatulence.
friendly in effectiveness – so gentle, no rush, no griping, strain or leakage. Lubricates, softens intestinal contents. Evacuations are moist, comfortably passed.
NEO-CULTOL
Wide-mouth jars of 6 oz.
Send for tasting and testing samples.
friendly to the constipated colon
the arlington chemical company
Yonkers 1, N. Y.
division of U. S. Vitamin Corporation

NEWER MEDICINALS

—Concluded from page 178

Neolin Suspension, Eli Lilly & Co., Indianapolis 6, Ind. For infections susceptible to penicillin. **Dose:** As determined by physician. **Sup:** In packages of 60 cc.

Panbiotic, Bristol Labs., Inc., Syracuse, N. Y. Combination of Crystalline Procaine Penicillin G., Crystalline Potassium Penicillin G and Dibenzylethylenediamine Dipenicillin G plus a suitable buffering agent in a dry form for systemic therapy of most infections caused by penicillin sensitive organisms. **Dose:** As determined by physician. **Sup:** In one-dose vials containing 1.2 million units and five-dose vials containing 6.0 million units.

Permapen Suspension, Permapen Suspension for Injection, Chas. Pfizer & Co., Inc., Brooklyn, N. Y. In rheumatic fever, and in other conditions where this antibiotic (penicillin) is administered prophylactically. **Dose:** As determined by physician. **Sup:** Suspension, in bottles; Suspension for Injection, in packages of 10 Steraject cartridges, with needles.

Pro - Banthine Bromide Tablets, G. D. Searle & Co., Skokie, Ill. In peptic ulcer, gastritis, pylorospasm, biliary dyskinesia, pancreatitis, hyperemesis gravidarum, colonic, ureteral and bladder spasm, diverticulitis and hyperhidrosis. **Dose:** Recommended initial dosage is 1 tablet with meals and 2 tablets at bedtime; patients with severe manifestations may need an increased dosage—2 tablets 4 times daily may be prescribed. **Sup:** In bottles of 100 and 1,000 tablets.

Pyronil Tablets, Eli Lilly & Co., Indianapolis 6, Ind. In the treatment of allergic rhinitis, ocular allergy, allergic skin diseases, allergic headaches, gastro-intestinal allergy. **Dose:** Two to 6 tablets daily orally. **Sup:** In bottles of 100 and 1,000 tablets.

Silicote Ointment, Arnar-Stone Laboratories, Inc., Evanston, Ill. To protect skin against irritation and maceration by water-soluble external contactants and endogenous secretions; and used prophylactically before exposure to prevent irritation, or therapeutically. **Dose:** Apply topically to area to be protected and rub in well, amount to be determined by physician. **Sup:** In tubes of 1 oz. and jars of 1 lb.

MEDICAL ILLUSTRATIONS

CHARTS, GRAPHS AND SLIDES

MADE TO ORDER

MEDICAL ART AND SLIDE SERVICE, 676 Northern Blvd., Great Neck, N. Y.